

Article

Foraging Eco-Ethology, Incentives and Motivations in the Kindergartens of Norway Based on Sámi and Norwegian Cultures

Veronica Bergan ^{1,*}  and Marikaisa Laiti ² 

¹ Department of Education, Faculty of Humanities, Social Science and Education, UiT The Arctic University of Norway, NO-9037 Tromsø, Norway

² Department of Sami Teacher Training, Sami Early Education Teacher Training, Sami University of Applied Sciences, NO-9520 Kautokeino, Norway; marikaisal@samas.no

* Correspondence: veronica.bergan@uit.no; Tel.: +47-77660466

Abstract: Early childhood education (ECE) institutions in Norway highly value nature and outdoor activities. The framework plan for kindergartens encourages that children get insights into the origin of food. The approach for imparting this knowledge incentivises foraging in kindergartens. The eco-ethology of humans is dependent on cultural values and practices and what is available for harvest in the local environments in different seasons. This paper explores the incentives and motivations for foraging in kindergartens in Norway through a qualitative approach. The data was collected from Sámi and Norwegian ECE professionals through on-site video documentation, group interviews, in-depth semi-structural interviews, and field notes. It was analysed using reflexive thematic analysis, in which the researchers had an active role in the process through reflexive engagement with theory, data, and interpretation. Three themes related to the incentives and motivations for foraging were found: (1) “viewpoints of nature”, (2) “transfer and production of knowledge”, and lastly (3) “motives and meaning for foraging”. Norwegian ECE professionals seemed to view nature as a place to explore outdoors (termed *friluftsliv*) and Sámi ECE professionals used nature for a practical purpose (termed *meahcci*). Nature was used by all the ECE professionals for transfer and production of knowledge. The motives and meaning for foraging in ECE settings in Norway originated from the cultural values of purposeful use of nature’s resources. Further studies are needed to investigate the prevalence and importance of foraging practices in ECE, especially in terms of its significance to education for sustainability.

Keywords: early childhood education; indigenous education; Sámi culture; Norwegian culture; foraging; sustainability; eco-ethology; *friluftsliv*; *meahcci*



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1. Introduction

Norway’s cultural heritage is strongly rooted in being outdoors in nature for recreation, exercise, or livelihood (Breivik 1978). Livelihood has been connected to the local climate, landscape, and resources in the area where people dwell, and the traditions of hunting and gathering for wild food resources, also termed foraging, have correlated with what has been ripe or available through the shifting seasons. Most of the Norwegian landscape consists of either coastal areas with fjords surrounded by rocks and mountains or large mountainous areas with freshwater lakes surrounded by woodlands, plains, or wetlands. Only three percent of the land is cultivated for agriculture (innmark) (NIBIO 2017), and forty-four percent is intervention-free uncultivated land (utmark) (Miljøstatus 2018). The Norwegian government has provided a law, the Outdoor Recreation Act §5, which provides the Norwegian public’s right to harvest wild food resources with due care in the uncultivated land (MCE 1957).

Recently, a governmental white paper (Meld. St.) entitled *Friluftsliv* (i.e., Outdoor life)—Nature as a source of health and quality of life was published (MCE 2016). It includes the harvesting of natural resources outdoors and suggests initiatives to increase activities such as hunting, recreational fishing, and berry and mushroom picking (pp. 89–98). The same document points out how outdoor activities in nature should be strengthened in the whole educational system by laying a solid groundwork in kindergarten (pp. 76–77). The framework plan for kindergartens also emphasizes this by stating that “the educators shall help the children gain an insight into food sources” (NDET 2017, p. 50). The core values of the framework plan on sustainable development say that the children shall be given opportunities to care for the natural environment and state specifically that “[...] for Sami children, this means living in harmony with, making use of and reaping the land” (ibid.) (p. 10).

In research connected to Indigenous peoples, it is important to be explicit about the authors’ research positions. The first author is of coastal Sámi origin and has recognized her Sámi heritage in her adult years. She does not speak any of the Sámi languages due to the Norwegian colonizing history that resulted in the total loss of Sámi languages and signatures in the fjord where her family lived. Her grandparents understood the Sámi language and were food self-sustained from fishing, farming, foraging, and gardening. These cultural values have inspired her work as associate professor in natural science in early childhood teacher education (ECTE) at UiT the Arctic University of Norway. The second author is grown and educated in Finland. Her connection to Sámi early childhood education (ECE) is through her family connections, work, and research. She knows the North Sámi language. She has been working in ECE in Northern Finland for the past 20 years in different positions, and for the last 10 years in Sámi ECE as the head of a kindergarten with a Sámi unit. Currently, she works as an associate professor in Sámi ECTE at the Sámi University of Applied Sciences in Norway. Her recent research is about implementing Sámi pedagogical principles in Finland and Norway (Sámediggi n.d.).

This article aims to highlight the eco-ethology (behaviour ecology) of foraging in kindergartens in Norway from the perspectives of Sámi and Norwegian cultures. This means how kindergarten children and practitioners are motivated to do and perceive foraging practices in relation to their living environments. Specifically, we asked (1) what contributes to and motivates foraging activities in kindergarten, and (2) how do Sámi and Norwegian cultures support and encourage foraging in ECE?

1.1. The Sámi as an Indigenous People of Norway

The Indigenous Sámi peoples have traditionally lived in the northern part of Norway in a larger geographical region called Sápmi (the northern part of Norway, Sweden, Finland, and the Kola Peninsula in Russia). The Sámi have been recognized as an indigenous people in Norway since 1990, after the ratification of the ILO convention 169 (Regjeringen 2020). This ensures the Sámi legal rights to realize and develop their social and cultural identity, language, traditions, and institutions, and to decide matters that concern them. There are three official Sámi languages in Norway: North Sámi, Lule Sámi, and South Sámi. A variety of local traditions are connected to different Sámi landscapes (Joks et al. 2020) where foraging, the gathering of natural materials for traditional clothing, handicrafts, and the making of useful tools for daily living are carried out (Guttorm 2011).

The Sámi culture has arisen during a long history of interaction between the Sámi people and the surrounding landscapes and land. This relationship is still present today, even though most Sámi live modern lives (Valkonen and Valkonen 2014). Historically, the Sámi have been connected to the region’s land and to their livelihood as reindeer herders (nomads between the inland and the coast due to the migration of the reindeer), fishermen (living in coastal areas), and forest Sámi (living in woodlands/inland). It seems that the tradition of foraging persists to some extent amongst the Sámi (Statistics Norway 2022b), and it is carefully done with respect to sustaining biodiversity (Nilsen et al. 2022; Utsi 2007).

Like other Indigenous people of the world, the Sámi have a strong connection to nature. The Sámi word *meahcci* is often used instead of nature in Sámi literature (Joks et al.

2020). This refers to a holistic system formed by people and meahcci. It includes spiritual, practical, physical, and geographical aspects of a purposeful relationship to nature (Joks et al. 2020; Nilsen et al. 2022). This implies knowing where and when to harvest different kinds of food resources and preparing the harvest for a meal outdoors, or to preserve it for storage at home. The strong connection to nature involves knowing how to do it in a sustainable way to ensure regeneration (Utsi 2007). The Sámi understanding of nature is beyond the physical environment (see also Biente 2021).

1.2. Foraging Traditions in Norway

Foraging practices in Norway have traditionally been a supplement for livelihood in old hunting, fishing, and farming settlements, especially in rural areas (Breivik 1978). The Norwegian diet has varied a lot since the 16th century due to where in Norway people live. In the cold Arctic region of Sápmi, the pursuit of livelihood was a full-time act of hunting and gathering all kinds of wild foods (Breivik 1978), while in the southern rural areas where agriculture, animal husbandry, and fishing in the sea were prevalent, berry picking, hunting, and gathering wild plants were only regarded as a supplement in times of need (Grøn 1942). The class distinction between town and country people also played a part in people's eating habits and outdoor practices. People from the towns regarded outdoor life as a part-time act for recreational purposes and physical activity rather than to forage for food (Breivik 1978; Grøn 1942). The local knowledge of how, what, and when to harvest natural resources was passed on from generation to generation in families from rural areas, especially amongst the Sámi. The Norwegian cultural heritage of valuing outdoor life or friluftsliv (Tordsson 2010) is based on a long tradition of outdoor activities, including foraging. The Nordic term friluftsliv has many meanings and can be translated as "free-life-under-the-open-sky" (Beery 2013; Gurholt 2015). The political definition of friluftsliv from the Ministry of Climate and Environment is "being outdoors and exercising in your spare time with the aim of recreational change and experience of nature" (our translation) (MCE 2016). However, friluftsliv is a wide term of practices in nature with motives to make "nature-friendly adventures" available to all (Gurholt 2015), including children in kindergarten (Neegaard 2022). We will use the term friluftsliv in this text concerning the Norwegian cultural perspective.

For the indigenous Sámi people of Norway, nature relations are essential values in Sámi culture and society (Valkonen and Valkonen 2014). Being self-sustained for food and everything else needed in daily life has been highly valued in the rural population, especially amongst the Sámi, and foraging has played a significant role in this respect. Foraging in Sámi culture plays an important role as part of the larger socio-ecological context. In the Sámi context, foraging relates to human-landscape connectedness. Foraging in the Sámi context means knowing the history of places, appropriate ways to forage, and foraging seasons. It contains an understanding of the meaning of foraging for both culture and landscape (Nilsen et al. 2022).

A report from Consumption Research Norway (SIFO) shows that "food from nature" is a trendy term that is associated with sustainability and a healthy, active, and simple life outdoors (Bugge 2015). According to the living conditions survey on sports and friluftsliv in 2021, almost 42 percent of those questioned stated that they pick berries or mushrooms in their spare time (Statistics Norway 2021). Chefs in Norwegian restaurants want to add local flavours to their menus (Helgesen et al. 2022), and several blogs and books have recently been published on harvesting wild foods.

1.3. Kindergartens in Norway

ECE institutions in Norway are termed kindergartens ("barnehage" in Norwegian; "mánáidgárdi" in North Sámi) and most children (93.4 percent) aged zero to six years are enrolled (Statistics Norway 2022a). There are 5420 kindergartens in Norway which are considered play-based and educational, having a child-centred approach (ibid.). They are organized very differently in the urban or rural parts of Norway. The urban ones may

have several units with 10–18 children in each unit divided by age (1–3 and 3–6), while the smaller ones have all age groups together. Usually, the Sámi kindergartens or Sámi kindergarten units have mixed age groups. The framework plan for kindergartens is the same for Norwegian language and Sámi language (and Sámi culture) kindergartens. The framework plan defines the fundamental principles, goals, learning content, and activities for the children, and core values are based on a child-centred view with emphasis on democracy, diversity, equality, sustainability, and wellbeing (NDET 2017). The indigenous Sámi people are especially included in the framework plan to ensure that Sámi kindergarten children gain support in “preserving and developing their language, their knowledge and their culture irrespective of where in Norway they live” (ibid.) (pp. 7–8). There were 32 Sámi kindergartens in Norway in 2020 (Johansen et al. 2020), in addition to approximately the same number of Sámi kindergarten units with Sámi-speaking educators where these obligations are met.

ECE practitioners in Norwegian kindergartens consist of ECE teachers (bachelor’s degree in ECE) and teacher assistants with or without practical childcare education for two years (Statistics Norway 2022a). Some leading practitioners in larger kindergartens may also have a master’s degree in ECE or special education pedagogy. There is at least one ECE practitioner for every 6th child in kindergartens of Norway (NDET 2022).

As mentioned previously, friluftsliv and nature encounters are highly valued in Norway, and this is also true for kindergartens (Sandseter and Lysklett 2018). The framework plan for kindergartens states that “kindergartens shall enable children to enjoy friluftsliv experiences all year round” (NDET 2017, p. 52), but it does not explicitly mention foraging. Instead, harvesting from nature is emphasized specifically for the Sámi children as a cultural pedagogical practice for sustainability (ibid.) (p. 10). The aim is to build relations to the land and, through that, to their indigenous culture. Foraging activities are natural practices to include in the ECE curriculum to ensure cultural, social, and environmental sustainability (Bergan et al. 2021, 2023; Laiti et al. 2022; Utsi et al. 2019). Foraging also supports Sámi values and pedagogical practices in nature (Bergan and Myrstad 2022; Laiti and Määttä 2022).

1.4. *Eco-Ethology of Foraging in Kindergartens*

The term eco-ethology refers to the study of the relationship between the behaviour of animals, or in our case humans, and their environments (Krebs and Davies 1981). When it comes to foraging, the eco-ethology of humans is highly dependent on what is available for harvest in the local environment and landscapes in different seasons, climate and weather conditions, as well as natural variations due to ecological factors (e.g., pollinating insects). Eco-ethology is also dependent on how cultural values and foraging practices are transmitted to the younger generation (Hitchcock 2019). Research on how foraging knowledge is obtained in early childhood shows it is mostly on the site of foraging through social learning (Boyette and Hewlett 2017), instructional teaching with trial and error (Lew-Levy et al. 2017), engagement in a community of foraging practices (Utsi et al. 2019), or child-to-child teaching (Lew-Levy et al. 2020). Since foraging is not a necessity for livelihood in modern societies, it has been advocated for inclusion in ECE as an act of developing an environmental identity and education for sustainability (Green et al. 2016; Green 2017) or developing a cultural identity (Bergan et al. 2021; Lunda and Green 2020). Foraging is also a mediator of ecological and social sustainability in ECE (Bergan et al. 2021; Laiti and Määttä 2022; Laiti et al. 2022). In indigenous contexts, foraging and other land-based practices have a broad meaning for building indigenous knowledge (Jackson-Barrett and Lee-Hammond 2018; Lunda and Green 2020; Rowan 2017) and indigenous pedagogy (Wildcat et al. 2014).

1.4.1. Foraging in Norwegian Language Kindergartens

There is one particular project in a Norwegian kindergarten in Finnmark (part of the Sápmi area) that explored foraging practices in depth during a three-year project

period. Three book chapters have been published from this project in Norwegian anthologies (Krempig and Utsi 2017; Krempig et al. 2022; Utsi et al. 2019) and one international publication (Bergan et al. 2021).

The first publication explored how food resources from the “wild” could be used for pedagogical purposes in kindergarten to support children’s development, play, and learning (Krempig and Utsi 2017). Here, the project was thoroughly presented with respect to what kinds of wild food resources were harvested during what season and the further preparation of food products. The main findings were that the children showed interest and engagement to explore and taste different types of berries, plants, herbs, fish, Rock ptarmigan (*Lagopus mutus*) or Willow grouse (*Lagopus lagopus*), and reindeer. The foraging interest grew throughout the project period of three years. The children also showed verbal and bodily signs of gaining experience, understanding, and knowledge of where food comes from and how foods are prepared for a product or meal. The authors discussed the implications of foraging and how it can enrich kindergarten pedagogy with respect to promoting health, cultural perspectives on friluftsliv, the knowledge of food origin, interdisciplinary work, and sustainability (Krempig and Utsi 2017).

Other publications from this project explored foraging with respect to sustainability and how collaboration between kindergarten staff, children and external experts increased foraging competence (Utsi et al. 2019), and the collective learning resembled communities of practice (Wenger 1998). The findings suggested that the accumulated competence resulted in increased curiosity and engagement for what nature had to offer and that local experts on foraging supported the staff when they had knowledge gaps (Bergan et al. 2021; Utsi et al. 2019). The foraging repertoire and agency grew amongst everyone involved, and this was recognized as an agency for sustainability (Utsi et al. 2019). It represented a social way of learning that connected the children and staff to local food heritage and culture (Bergan et al. 2021).

The last book chapter from the same foraging project explored how friluftsliv in the form of foraging had an impact on nature connectedness or nature affiliation among the kindergarten children (Krempig et al. 2022). Recurrent firsthand encounters with, for example, fishing and picking berries were considered important for nature connectedness and for tasting harvests on-site outdoors.

A recent paper on foraging in a Norwegian kindergarten investigated the teacher’s role in engagement in foraging activities (Bergan et al. 2023). The hallmarks of the teachers’ role are to “facilitate adventurous experience”, share knowledge through “child-centred communication” and “build collective knowledge and skills” for both children and staff. The paper argues for the role the teacher plays in foraging activities to advocate for and facilitate children’s development in becoming eco-citizens who care for the natural environment (Bergan et al. 2023). The data material from this paper is revisited in this text with new research questions.

The take-aways from these studies are that foraging practices in ECE has relevance for children’s learning, curiosity, and nature connectedness, their knowledge about local food resources, and competence and agency for ecological, social, and cultural sustainability. However, the cultural values and viewpoints which incentivizes foraging in ECE remains uncertain.

1.4.2. Foraging in Sámi Language Kindergartens

In Sámi culture, one goes to meahcci for a practical reason, such as to forage for food, find and prepare wood for a bonfire, find natural materials to make tools, and more (Nilsen et al. 2022). Among the Sámi, kindergarten foraging is one of many important outdoor activities (Bergan and Myrstad 2022; Laiti and Määttä 2022). The Sámi year is divided into ‘eight seasons’, each of which have specific characteristics and tasks (Helander 2021). In this way, the Sámi ECE is built on the cultural and historical context of the Sámi people.

The understanding of the interconnectedness of people and places is reflected in many ways in the Sámi ECE pedagogy (Becher et al. 2019). This understanding has directed the

goal of Sámi child-rearing and the ways in which children's learning is typically organized (Laiti Forthcoming). It also defines the activities preferred by Sámi ECE.

Foraging in a Sámi context is part of a larger cultural endeavour and pedagogical practice. It is part of the enculturation of children, which means the process by which an individual learns the traditional content of a culture and imbibes its practices and values (Keskitalo and Määttä 2011). The goal of Sámi child-rearing is to help children find their way in life, both physically and mentally. There is a value in Sámi child rearing named birgen, which means robust children who are self-reliant (Balto et al. 2019; Bjøru and Solbakken 2021). Foraging supports children's knowledge of local landscapes and ways to go around. When going in meahcci, children are asked to find their ways and pay attention to where they go (Bergan and Myrstad 2022). On the other hand, foraging provides possibilities for children to reason and think for themselves about what is good usage of nature resources, what is enough for their needs, and so forth, which again supports their birgen. According to the Norwegian framework plan for kindergartens, Sámi kindergartens should pass on Sámi values (NDET 2017, p. 24).

Children's learning is traditionally organized in searvelatnja (Sara 2003). Searvelatnja is a learning arena in which different generations meet and have the opportunity to participate in ongoing shared activities (Balto and Kuhmunen 2014; Laiti Forthcoming). In this kind of shared learning arena, children can observe and have guidance (Nilsen et al. 2022). Foraging activities are often organized in the form of searvelatnja where elders participate, contribute, and share their knowledge and experiences. Elders' participation is also to support endangered Sámi languages to remain alive and rich. In these shared moments, children hear stories about earlier foraging experiences and gain knowledge of plants, landscapes, and ways of foraging. Foraging also has meaning for Sámi children's cultural identity building. Sámi culture is born and grown with nature. Foraging supports children in getting to know and feel comfortable in meahcci. Feeling connected to meahcci also means a feeling of belonging to the Sámi community (Nilsen et al. 2022; Nystad et al. 2017; Tervaniemi and Magga 2018). Foraging is thus part of the children's enculturation process as they grow as members of their Sámi communities.

There is a rich Sámi cultural heritage originating from meahcci, or nature. Living directly in nature has formed both social orders like searvelatnja and the everyday practices and knowledge of child-rearing. Foraging is an important activity in Sámi ECE to make Sámi culture values concrete to children. As mentioned before, there is lack of knowledge on how foraging is incentivized and motivated ECE.

2. Materials and Methods

The purpose of this study was to highlight the eco-ethology of foraging in kindergartens in Norway from the perspective of Sámi and Norwegian cultures. These two cultural perspectives were chosen because they are both mentioned in the framework plan for kindergartens in Norway related to facilitating children's insight into food sources (NDET 2017). Two qualitative studies are included to be revisited with respect to foraging practices in Norwegian kindergartens, one from a Sámi ECE perspective (Bergan and Myrstad 2022) and the other from a Norwegian ECE perspective (Bergan et al. 2023). The details on methodology for both studies with respect to participants, methods and ethics are described previously (Bergan and Myrstad 2022; Bergan et al. 2023).

The Norwegian ECE study was a participatory action research investigating the teacher's role in engagement in foraging and gardening activities in kindergarten (Bergan et al. 2023). The study was undertaken in a medium-sized kindergarten (60 children aged 0–6 years) organized in four units in an urban setting in the northern part of Norway (part of Sápmi). The staff consisted of 9 teachers and 11 assistants. The study involved collaboration between a field researcher who was an external expert on foraging (first author) and Norwegian ECE professionals/teachers. The research was part of a larger project called "being and becoming eco-citizens" in "KINDknow (i.e., Kindergarten Knowledge Centre for Systemic Research on Diversity and Sustainable futures)" founded by the Norwegian

Research Council (grant no. 275575). The research was approved for following ethical standards by the Norwegian Centre of Research Data (reference no. 920483). Both staff and children's parents gave their written consent to participate. In addition, the children were asked to approve the filming during the activities, to which they all agreed. The data material consisted of on-site video documentation of the process of planning, engaging, and executing two foraging processes from harvest to product in August and September. The products were cordials made from extracts of Rosebay willowherb (*Chamaenerion angustifolium*) flowers and crowberry (*Empetrum nigrum*) juice. In addition to the video sequences, group interviews with kindergarten teachers and field notes from the field researcher were collected as data (Table 1). All data were anonymized.

Table 1. Data material used in this study.

<i>Data Material</i>	<i>The Sámi ECE Setting</i>	<i>The Norwegian ECE Setting</i>
Individual interviews	Four interviews of 30–55 min: <ol style="list-style-type: none"> 1. Female, 26 years' experience, pedagogical leader in a Sámi unit of an urban kindergarten 2. Male, 7 years' experience, pedagogical leader in a Sámi unit of an urban kindergarten 3. Female, 6 years' experience, pedagogical leader in a Sámi unit of an urban kindergarten 4. Female, 16 years' experience, pedagogical leader in an urban Sámi kindergarten 	
Group interviews		Two group interviews of ECE professionals (Two participants in each group). The interviews were approximately 30 min each.
Video sequences		In total 8 h and 20 min
Field notes		Six field notes written by the field researcher (author 1)

The Sámi ECE study had the purpose of exploring Sámi kindergarten professionals (from Sámi heritage having a bachelor's degree in ECE) perspectives on friluftsliv and the use of nature as a resource for children's formal development and learning (Bergan and Myrstad 2022). This study was based on in-depth semi-structural interviews with four Sámi kindergarten professionals who worked in Sámi kindergartens or Sámi kindergarten units in different urban parts of Sápmi in Norway (Table 1). The study did not specifically aim to investigate foraging, but it was mentioned by all informants as an important part of their pedagogical practice in nature. Thus, we wanted to get more in depth into the incentives behind why foraging was considered an important practice in Sámi kindergartens. This research was also approved by the Norwegian Centre of Research Data (reference no. 869443), and the informants were asked for oral consent in a recorded Zoom interview. The interviews were transcribed and anonymized.

The data from both studies were analysed to answer the following two research questions:

1. *What contributes to and motivates foraging activities in kindergarten?*
2. *How do Sámi and Norwegian cultures support and encourage foraging in ECE?*

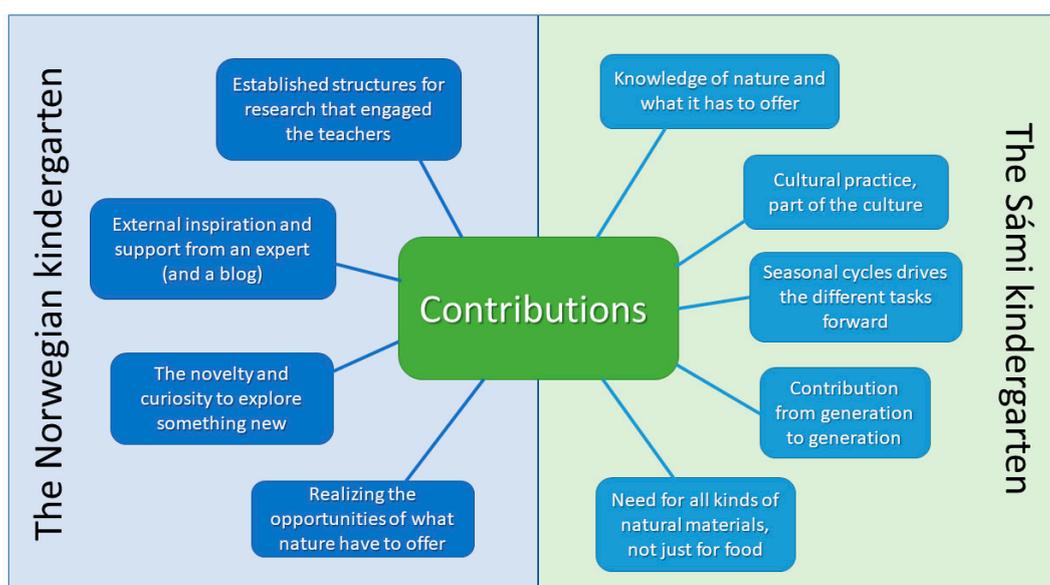
Analysis of Data

Since the previous studies investigated research questions based on Sámi educators' and Norwegian educators' viewpoints and practices, we here analysed what contributed to (reasons why, incentives) and motivated (moved the activities forward) foraging practices from the two cultures' perspectives. Based on the findings, the eco-ethology (the

behavioural aspect related to the environment) was further discussed with respect to its implications for future and cultural sustainability in ECE.

The data material was analysed using reflexive thematic analysis (RTA), in which the researcher(s) has an active role in the process through reflexive engagement with theory, data, and interpretation (Braun and Clarke 2020, 2021). The RTA method includes six steps (Braun and Clarke n.d.): (1) data familiarization; (2) data coding; (3) generating initial themes; (4) developing and reviewing themes; (5) refining, defining, and naming themes; and (6) writing the report. RTA was chosen because it “fully embrace qualitative research values and the subjective skills the researcher brings to the process” (Braun and Clarke 2021, p. 333) and because of the flexibility that lies in abductively developing themes as a “pattern of shared meaning, united by a central concept or idea” (p. 341).

The study design and data material were obtained by the first author (A1) who had previously described and analysed them (Bergan and Myrstad 2022; Bergan et al. 2023). Thus, the data was already familiar (step 1) and ready for new coding (step 2) through the lens of the new research questions. Data coding (step 2) was performed by A1 in a deductive way from the lens of contribution (why it came about, frames and reasons for doing it) and motivation (inherent and emergent motivations behind the activities). Then, A1 made two mind maps—one for contribution and the other for motivation—to get an overview of the headlines or initial themes of the coded data (step 3). The second author (A2), who had never seen the dataset before, also read through all transcripts, field notes, and initial coding to get an overview and familiarize herself with the data (steps 1–2). Then, A2 made similar mind maps to compare with A1 to align the initial themes (step 3). Thus, steps 1–3 were performed separately by the two authors to increase reliability. Through collaboration, the agreed-upon initial themes (step 3–4) resulted in Figure 1A,B. The authors met several times to refine, define, and name the themes of shared meaning of what motivated and contributed to foraging in the kindergartens (step 5). This phase of the analysis required looking through the details of the dataset for quotes and incentives for foraging from the two culture perspectives (reflexive analysis that was data driven). The role of A2 was specially to reflect to the dataset from the Sámi informants, since her research expertise is on Sámi ECE (Laiti 2018, Forthcoming; Laiti and Määttä 2022; Laiti et al. 2022). Both authors wrote the final report (step 6) of the agreed upon final themes and the findings that supported them, which follows next.



(A)

Figure 1. Cont.



(B)

Figure 1. Shared mind maps of initial themes for analysing and interpreting the data for what (A) contributes to and (B) motivates foraging in kindergartens with Norwegian or Sámi ECE professionals.

3. Results

In our data analysis, we find at least three themes that answer the research question: “What contributes to and motivates foraging activities in kindergarten?” First, foraging practices in Norwegian and Sámi kindergartens are based on the ECE professionals’ “viewpoints of nature”. Second, the data suggest that the “transfer and production of knowledge” on harvesting from nature to prepare food products are both different and similar in Norwegian and Sámi kindergartens. Lastly, the “motives and meaning for foraging” seem to diverge in the two kindergarten settings when we consider the question, “How do Sámi and Norwegian cultures support and encourage foraging in ECE?”

The following subsections will examine the three themes more in depth, as we believe the themes highlights the eco-ethology of foraging in Norway from Sámi and Norwegian cultural perspectives.

3.1. Viewpoints of Nature

The Norwegian and Sámi ECE professionals seemed to perform harvesting practices from different viewpoints of nature. For example, the Norwegian professionals realized the opportunities of foraging for crowberries (*Empetrum nigrum*) to make cordials while being outdoors in nature picking blueberries.

We were picking blueberries and sort of discovered the local area, what we could find, right, and then we saw that there were crowberries too. [...] and there were lots of crowberries. [...] And we introduced the concept and possibility of making cordials of these berries [to the children].

—Group interview, Norwegian kindergarten

The Norwegian professionals were used to picking blueberries with the children. However, they did not realize the opportunities for harvesting crowberries until they had become aware of the possibility of making cordials from crowberries (from a blog) and that nature had lots of it in their local area. It seemed that the Norwegian professionals viewed nature as exciting for the children to explore and to harvest tasty resources.

The framing was very nice, and it was easy to be a child [...] everybody was out in the woods, some harvested [crowberries] in berry picker tools, some picked

blueberries, some peeked mostly into the heather, and some were very busy [. . .] but we collected a lot, a lot of berries.

—Group interview, Norwegian kindergarten

The Sámi professionals, on the other hand, used their knowledge of nature and what it has to offer to direct their activities. Knowledge about the ‘eight seasons’ laid the groundwork for the activities in kindergarten. This was mentioned by three out of four informants. Here are two examples:

And when it comes to tradition, we want to work according to the 8 Sámi seasons and in each of these seasons we want to have traditional activities that are possible to carry out.

—Informant 2, Sámi kindergarten

We follow the Sámi 8 seasons and use it in “friluftsliv”, for example in nature, in what needs to be done.

—Informant 3, Sámi kindergarten

In the Sámi kindergarten, nature was valued as a resource for harvesting all kinds of materials to support their livelihood and culture. The Sámi professionals expressed that they wanted to use nature with purpose and not just for exploration:

[. . .] and use nature, not just be there to look, but to use it for something useful and to show that you can somehow save yourself from some of what we find. And we have been chopping wood and we have tried [to harvest] senna grass, and we use [birch-branches] for the lavvo floor. And we gather berries and mushrooms and things like that.

—Informant 1, Sámi kindergarten

Nature is more than what we have around us. It is our “dinner plate”. It is where we get our resources. That’s where we get trees if we’re going to make guksi (i.e., round cup from trees) or [more].

—Informant 2, Sámi kindergarten

The Sámi professionals considered nature to be something that was of huge importance and provided all kinds of resources. They followed the ‘eight Sámi seasons’ and valued nature as a fundamental element in supporting their livelihood. The Norwegian professionals seemed to enjoy nature as a place to explore what it had to offer the children. These diverging viewpoints of nature may originate from cultural perspectives.

3.2. Transfer and Production of Knowledge

The transfer and production of knowledge seemed to be an overall contribution and motivation to forage in Norwegian and Sámi kindergartens. The Norwegian professionals got their new knowledge on foraging from the outside—from an external expert (the researcher). They were inspired to learn and do something new in the established research project. From the researcher’s field notes, we read the following:

I came to the kindergarten because the staff wanted to discuss what we now could do either in the garden or to harvest from nature. [. . .] I suggested that they could make cordials from meadowsweet (*Filipendula ulmaria*) since it now was ripe for harvesting. They had never done that before, so it sounded exciting.

—Field note 1, Norwegian kindergarten

The knowledge transfer was initially inspired by the researcher, and later field notes and interviews confirmed that support from the researcher was essential for the foraging of flowers and berries to make cordials. This was particularly important because meadowsweet had produced seeds and was overdue on the day of harvest. The researcher wrote:

When we arrived, I discovered that the meadowsweet (*Filipendula ulmaria*) flowers had gone to seed, so we wouldn’t be able to make extracts from them anyway. But

I also saw that there were a lot of Rosebay willowherb (*Chamaenerion angustifolium*) at the same place that they could pick instead. So, then it became possible to make Rosebay willowherb cordial instead.

—Field note 3, Norwegian kindergarten

The interviews revealed that some of the Norwegian professionals had some knowledge of foraging before they became involved in these processes towards making cordials:

When we keep on doing these projects concerning foraging and preparing food, we see a huge engagement in the staff and many [amongst the staff] have been involved in some of it before and have some knowledge about this. [...] It [foraging] is a very fun thing to do, yes.

—Group interview, Norwegian kindergarten

The Sámi professionals seemed to get their foraging knowledge from generational transfers inside their culture. The knowledge of how, when, and where to pick cloudberries (*Rubus chamaemorus*) was mentioned by two informants:

My grandmother used for example to get up at 4 am. She knew when the cloudberry was ripe. So, then it was important to get up first and being the first one out picking. That's how I've also been trained or [I have] learned through her.

—Informant 2, Sámi kindergarten

“Luomemeahcci”. That means I am going to the cloudberry bog. I am grown up with that.

—Informant 4, Sámi kindergarten

At the harvesting site, the transfer and production of knowledge seemed to be a collaborative endeavour that gave the children the freedom to choose to participate or explore on their own. This was confirmed both from the interviews and the video sequences at the site of harvest in the Norwegian kindergarten and from the interviews with the Sámi professionals.

We make some arrangements and invite [the children] in and then there is also room for them to go out and sit down to pick blueberries or crowberries if that is the case.

—Group interview, Norwegian kindergarten

The Sámi professionals emphasized that they followed the signs in nature and talked about them with the children:

We talk about nature when we are on a trip. We try to notice and seize the moments when the children wonder about “what is here, or what is happening here”.

—Informant 2, Sámi kindergarten

And then we constantly talk to the children about what is going on around them. We put words to those things.

—Informant 3, Sámi kindergarten

Both Norwegian and Sámi professionals supported the children's learning of how to harvest by showing and explaining to them why things are done the way they are in the harvesting process. See also (Bergan et al. 2023) for a full overview of how Norwegian professionals interacted with the children.

One of the Sámi professionals highlighted sharing knowledge at the site in nature rather than beforehand.

When the child comes and picks [berries] there next to you and you pick berries together, then you talk about “look here are blueberries while that is bog bilberries (*Vaccinium uliginosum*)”. To look a bit at differences and such. Rather than showing a paper display with berries before we go.

—Informant 1, Sámi kindergarten

Foraging was also used as an arena to practice the Norwegian or Sámi language in both kindergarten settings:

To use words [or language] actively [while harvesting]. [...] thinking about language and language environment. We are highly aware about having dialogues with children [in this foraging project].

—Group interview, Norwegian kindergarten

We have picked blueberries and lingonberries with the children. What I see as very nice is learning the Sami words like “sarrit” which is blueberry and lingonberry which is “jokna”, and “čahppesmuorjijt” which is crowberry.

—Informant 2, Sámi kindergarten

To sum up, the transfer and production of knowledge are important factors for foraging in both Norwegian and Sámi kindergarten settings. It seems that the Norwegian professionals obtain some of their knowledge from an external expert on foraging, while the Sámi professionals seem to have their knowledge from generational transfer and their cultural upbringing. The way all the professionals work with the children in nature is through collaborative learning, which gives the children a high degree of freedom to participate or explore on their own. Foraging is also an arena for kindergarten children’s Sámi or Norwegian language learning.

3.3. Motives and Meaning for Foraging

Both Sámi and Norwegian professionals wanted to share knowledge and provide firsthand experience of foraging with the children, but their motives and meaning for doing this seemed to diverge from their cultural perspectives. Norwegian professionals were motivated by the novelty, engagement, and firsthand experience of harvesting from nature. They wanted the children to learn and explore freely and obtain experience with how nature is interconnected:

We are in the woods, and we have this activity, right, and it is a part of a larger process and then we need to harvest enough crowberries. Some are engaged for a long time and gather a lot, and then there are others who think it is a little fun and want to do other things. [...] To understand such [nature] connections when [the children] are so young, I think it will be like that we give them elements about that—about how nature is interconnected.

—Group interview, Norwegian kindergarten

The Sámi professionals had their own meaning of foraging resources, as it was motivated by creating opportunities for Sámi enculturation:

In most of the [Sámi] kindergartens I have been involved in, there is freshwater fishing. [...] They [the children] go fishing, and if we catch fish, we gut it and then we check—of course we investigate what’s inside. They are involved in everything. They are allowed to try it themselves. They get to take part in fishing—we fry it or boil it and then they get to taste it. [...] We can salt it, smoke the fish. I didn’t do that in kindergarten, but that’s also part of the tradition really.

—Informant 4, Sámi kindergarten

One of the most pronounced motives for foraging among both the Sámi and Norwegian professionals was that they all wanted to teach the children where food comes from:

We really emphasize that they should get to know where for example short-travelled food comes from. [...] It’s everything from food traditions and things related to reindeer husbandry, fishing, nature in general, farming, grouse hunting—in short where the food comes from.

—Informant 4, Sámi kindergarten

To sum up, the motives and meaning for foraging, in kindergartens with Norwegian or Sámi professionals, were about connecting the children to nature and giving them insight into food resources. The motives and meanings also embodied the exploration and firsthand experience of nature, and for the Sámi professionals, foraging included Sámi enculturation.

4. Discussion

4.1. Foraging Eco-Ethology, Incentives and Motivations

The eco-ethology of foraging in ECE in Norway, from the perspective of Sámi and Norwegian culture, is based on a view of nature as a place to explore outdoors *friluftsliv* (Norwegian) (Tordsson 2010) and the use of nature with a practical purpose *meahcci* (Sámi) (Joks et al. 2020). Our results seem to reflect these two cultural perspectives when we investigate incentives and motivations for foraging activities in kindergarten. The Norwegian professionals viewed nature as an exciting place for the children to explore and to harvest tasty resources for making cordials. This resembles the idea of *friluftsliv*, which is about being outdoors with the aim of recreational change and the experience of nature (MCE 2016). However, they also learned about practical activities in nature, driven by what is available at the time and place of harvest in August and September. Foraging flowers and berries to make cordials was motivated by knowledge of nature from an external expert. To some sense, this practical knowledge had similarities to the relational view of nature—*meahcci* thinking. We must mention that the external expert was of Sámi heritage and was raised in a close relationship with the resources of nature.

The Sámi professionals used their knowledge of nature to direct their activities in accordance with the eight Sámi seasons—all year around. This view of nature is in line with *meahcci* thinking, which embodies a holistic and dynamic view of how people interact with nature according to deep knowledge (Joks et al. 2020; Nilsen et al. 2022). The view is also supported by our findings that Sámi professionals value nature as a source to harvest all kinds of materials to support their livelihood and culture. One of the informants expressed explicitly that the use of nature had a purpose and not just for exploration. Another explained that “nature is more than what we have around us”. These Sámi cultural views of nature support a deep connection to *meahcci* to sustain their livelihood and the importance of nature for the Sámi people and culture (Valkonen and Valkonen 2014).

The transfer and production of knowledge was another important contribution to and motivation for foraging activities for Norwegian and Sámi ECE professionals. The Norwegian professionals seemed to get their new knowledge and support from an external expert or source (a blog) to make cordials. According to other studies, support from local expertise is a success criterion for the interest and engagement of both staff and children in foraging projects (Bergan et al. 2021; Krempig and Utsi 2017; Utsi et al. 2019). Some of the Norwegian practitioners in this study also seemed to embody foraging knowledge from beforehand in the process of harvesting and preparing crowberries. This supports the idea that foraging knowledge is still part of generational transfer in Norwegian culture. This is supported by a living conditions survey from Norway in 2021, where almost 42 percent of those questioned stated that they pick berries or mushrooms in their spare time (Statistics Norway 2021). However, we must mention that harvesting from nature is mostly done in the autumn by those of Norwegian heritage and rarely all year around, which is common in Sámi culture.

The Sámi professionals in this study seemed to get their foraging knowledge from intergenerational communication inside their families and cultures. This includes the principle of *searvelatnja*, which refers to shared learning spaces where different generations meet and work together and everyone can participate (Laiti Forthcoming). However, Sámi professionals have diverse family backgrounds and different practical experiences. They may also need input from elders, the traditional knowledge holders, if they have knowledge gaps. Foraging knowledge is likely to be transmitted in close relationships with nature in

the more rural parts of Norway, regardless of whether the professionals are of Norwegian or Sámi family heritage.

Our findings show that both Sámi and Norwegian professionals work with children in nature through collaborative learning and they use foraging as an arena for the children's language learning. The Norwegian professionals use words actively while harvesting and are aware of the language environment, while the Sámi professionals use the opportunity of foraging to learn words for the different kinds of berries (see Section 3.2). Previous studies have shown that the social learning of foraging in kindergarten resembles communities of practice (Bergan et al. 2021; Utsi et al. 2019). Recently, foraging has been found as an ideal arena for Sámi language practice for social sustainability in ECE (Kleemann 2021).

The final theme, motives and meaning for foraging, is especially relevant to cultural sustainability when carrying on cultural ideas of friluftsliv in the Norwegian context and meahcci in the Sámi context. Foraging as a part of friluftsliv has the purpose of connecting children to nature through firsthand exploration (Krempig et al. 2022) and knowledge of the origin of Norwegian food heritage (Bergan et al. 2021). This is in line with the motive for foraging of the Norwegian ECE professionals in this study. In addition, foraging practices, whether in Norwegian or Sámi ECE contexts, are highly relevant to education for sustainability (Bergan et al. 2021, 2023; Utsi et al. 2019).

The motives of the Sámi professionals in this study were based on an awareness of transmitting all kinds of cultural knowledges in nature with the Sámi children as a natural part of everyday life following the eight seasons. This is in line with Sámi ECE professionals' thinking in Finland (Laiti and Määttä 2022; Laiti et al. 2022). Outdoor activities have the purpose of making the children birgen—self-reliant in life (Balto et al. 2019; Bjøru and Solbakken 2021). This is also confirmed in our data, where children are invited to pay attention to things in nature and to participate in foraging tasks. Since indigenous knowledge is connected to activities implemented in nearby lands (Lunda and Green 2020; Rowan 2017), the meanings behind foraging practices are purposeful use of nature and making the children birgen (Bergan and Myrstad 2022). The Sámi people view their local landscape as a practical place, which includes foraging as a relational way of knowing and using the land (Joks et al. 2020). Therefore, foraging practices are an ideal arena for Sámi enculturation. Practices in nature in Sámi ECE are a necessity for the survival and sustainability of the Sámi culture (Laiti and Määttä 2022).

The eco-ethology of foraging in kindergartens of Norway, whether they are defined as Norwegian or Sámi ECE settings, originates from the cultural values of purposeful use of nature. Our data suggest that Sámi professionals have a deeper understanding of how nature can be used all year around, not only for harvesting food, but also other nature materials. Our Norwegian case study is from an urban kindergarten setting in proximity to natural areas that are suitable for harvesting flowers and berries, and the foraging activity was in the late summer/autumn. The harvesting season is in the Norwegian language is called "høst" (autumn in English), and the verb for harvesting from nature is called "høsting". The Norwegian harvesting season is also connected to traditions in agriculture and farming. The culture features of foraging from the Norwegian and Sámi perspectives may lay in the viewpoints of when to harvest—throughout all eight Sami seasons or just in the autumn (Western viewpoint). Maybe we need to broaden our foraging perspectives of what nature has to offer in proximity to where we live all year around.

The Outdoor Recreation Act of Norway and the framework plan for kindergartens encourage and facilitate foraging practices in all Norwegian kindergartens. This, in addition to cultural values and traditions for foraging, contributes to and supports eco-friendly practices for cultural sustainability and local food heritage in ECE.

4.2. Limitations

This study has its limitations, as it only represents qualitative data from one middle-sized urban kindergarten in Northern Norway and interviews with four Sámi ECE professionals from four different urban settings in the larger geographical region called Sápmi in

Norway. The sample is too small to generalize for cultural differences that are interindividual, age-related or location-related (urban vs. rural). Although the data material from the Sámi perspective is small ($n = 4$), it seems to be representative of Sámi viewpoints compared with the earlier material from Sámi ECE professionals ($n = 23$) in Finland (Laiti 2018). The topics and emphasis from the four Sámi informants herein were not specially intended to investigate foraging practices, but rather to explore outdoor or friluftsliv practices in Sámi ECE contexts. All informants mentioned foraging as an outdoor activity in kindergarten, which supported the importance of foraging as a living cultural practice in the Sámi context. Observational data from Sámi ECE settings should have been included to make it more comparable to the Norwegian ECE data.

The RTA method has its limitations as it embraces the subjective skills of the researcher immersing with the data set (Braun and Clarke 2020, 2021). Thus, the bias of author 1 (A1) may have influenced the coding process. Author 2 (A2) was thus invited to join in the RTA to ensure sufficient distance from the data in the initial tree steps, and to ensure that the Sámi culture perspectives were consistent with previous research. A2 also knows the North Sámi language and have overview of Sámi research literature. Braun and Clarke (2019) state that “Themes are creative and interpretive stories about the data, produced at the intersection of the researcher’s theoretical assumptions, their analytic resources and skill, and the data themselves” (p. 594), which implies that the themes we have outlined are a mixture of our analytical skills in interpreting the data’s shared meaning. Other researchers may have found other shared meanings, concepts, or ideas, but these may also be wrong as being out of context from the experiences we have on foraging and ‘inside’ cultural perspectives. For this reason, we have backed up the themes with rich descriptions of quotes from the interviews and field notes to support the themes’ meaning.

Further studies are needed to investigate the prevalence and importance of foraging practices in ECE in a broader sense in Norway and the larger region of Sápmi, especially in terms of its significance to education for sustainability, birgen—children’s self-reliance, wellbeing, and cultural identity development.

5. Conclusions

Knowledge about foraging is actualized nowadays, which is plagued by climate change, social and political instability, population migration, and even war. The knowledge and skills of gathering local foods from the wild are found in our cultures’ histories. They have been passed down from generation to generation by our ancestors who knew how, when, and where to forage. Knowledgeable indigenous peoples, dependent on the fine balance of nature, view harvesting as a way of maintaining biodiversity and renewing resources. Our study shows that foraging practices in the Norwegian kindergartens appear to be a channel connecting the children to nature and local food resources. The cultural values of friluftsliv and meahcci are part of the eco-ethology, which contributes to and motivates foraging practices in ECE. What is striking is the role of external experts and/or elders sharing their knowledge with ECE professionals when the generational knowledge transfer is weak or non-existent. Collaborative projects on foraging with local experts seem to elicit engagement for learning and exploration for everybody involved. Because these projects focus on natural resources from the local area that nourish and stimulate our senses, it seems to be a fruitful way to work holistically with cultural values that reconnect the children with nature. Foraging practices outdoors engage both children and professionals in a way that has great potential for building deep knowledge of sustainability in all its dimensions, especially for the cultural dimension sustaining local practices in nature. The Sámi practical knowledge of nature and its changing seasons, which are embodied and emplaced in their culture through meahcci, is a way of using the land. Foraging is a way to share knowledge across generations about the dependence of all living things on Mother Earth. Definitively, starting with foraging in kindergarten or preschool could be the first step in building sustainability skills for future generations. Further studies will help

determine how children use their foraging knowledge and skills later in life and whether these activities foster agency for cultural values and a sustainable future.

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