

The contribution of decentralised nursing education to social responsibility in rural Arctic Norway

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ABSTRACT

This study explores and analyses decentralised nursing education in Finnmark County, Northern Norway, from 1991 to 2018. The study may have relevance for educational policy discussions and strategic planning. Our research question has been how decentralised nursing education can contribute to social responsibility by educating nurses rurally. The data collection includes documentation of 15 decentralised classes. The decentralised nursing education programme has been completed in nine rural communities in Finnmark County over 28 years and has resulted in 191 graduated nurses. Educating nurses locally influences recruitment and stability. The location of the study site determines where the recruited students come from. In future decentralised programmes, study sites should be located close to regions with a shortage of nurses. This is especially true of the eastern part of Finnmark, where recruitment to regular on-campus programmes is lowest. Limiting decentralised nursing programmes to local applicants should be considered. By prioritising local applicants, we will fulfil the university's responsibility to place qualified nurses in all parts of Finnmark.

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Introduction



This article is the first in a study of the decentralised bachelor's degree programme in nursing in Finnmark County from 1991 to 2018. Finnmark is part of the circumpolar Arctic region and the northernmost county in Norway, with a population of 75 860 in the third quarter of 2018. The county covers an area of 48 631 square kilometres and has 19 local authorities [1]. Finnmark has two local hospitals, with a distance of 530 km between them. In Finnmark, 18 of the 19 local authority areas can be defined as rural in terms of population density, with fewer than two inhabitants per square kilometre [2–4].

Due to long distances to hospitals, sparse population and a harsh climate, Finnmark needs highly qualified health workers for prehospital health care. According to the Norwegian Ministry of Health and Care Services [5], Norwegian educational institutions are excessively geared towards specialist health services; greater emphasis must be placed on educating health personnel for future primary care.

The social responsibility of education is subject to educational policy guidelines and legislation in the 2005 Higher Education Act, which emphasises that

educational institutions are expected to cooperate closely with society, culture and business [6]. Nursing shortage is a known challenge in rural areas, including Finnmark, especially in the smallest communities [7]. One measure to attract more nurses to rural areas is to offer education close to where students live. In the ten years to 2014, flexible education in Norway increased by 25% overall. Decentralised nursing education has become more and more common, being now offered by several educational institutions in circumpolar rural areas [8]. In the strategic plan for 2014–2022 of UiT The Arctic University of Norway, one of the overall objectives is flexible and online-supported learning methods [9].

In the Norwegian three-year bachelor's degree programmes in nursing, 50% of the programme is theoretical and 50% is practical studies in local authority health services and hospitals. Students are regularly supervised by their course teachers during their practice in hospitals and primary health services, which include nursing homes, home nursing and mental health care. The campus for nursing education in Finnmark is in Hammerfest, where we also find one of the two hospitals in the county. Hammerfest is in the

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far west of Finnmark and it is actually 530 kilometres from there to Kirkenes in the far east, close to the Russian border, where the other hospital is located. Both on-campus and off-campus students have the same curriculum, learning requirements and examinations. However, the organisation of the decentralised programme was intended to emphasise more flexible learning methods and require more independent work by students. Today, this distinction is less clear, as technology and digital teaching materials are used by both on-campus and off-campus students [10]. Decentralised study programmes allow students to study mainly at home. In our decentralised programme, students can gain from 118 to 180 out of 180 ECTS credits at their home location. The decentralised study programme has been both full-time and part-time and was one of the first in Norway to adopt flexible learning methods such as video conferencing.

Historical and geographical context

The background to the first decentralised study programme was the great shortage of nurses in rural Finnmark. Some of the challenges were excessive turnover, long-term vacancies [11–13] and the fact that more than 50% of newly qualified nurses in Finnmark found work outside the county [14].

National studies also revealed higher levels of sick leave and lower life expectancy in Finnmark than in the rest of Norway and thus a greater need for health care [15,16]. During World War II, Finnmark suffered from the scorched earth policy of the Germans, where they burned down almost all the buildings during their withdrawal before surrendering. At that time, the entire local population was evacuated to areas further south in Norway. The period from 1945 to 1960 was a time of reconstruction, when all of the infrastructure and business had to be re-established. The health services had great problems and hospitals and other health institutions operated from temporary huts. Education in the county struggled with similar challenges. Furthermore, pupils in Finnmark had lost much of their schooling due to the war and evacuation. Many young people in Finnmark had to leave the county for their education and many then settled elsewhere in Norway or abroad after graduating.

Nursing education in Finnmark was first established as a quota of six students in a programme organised by the Red Cross in Tromsø and later as a separate programme connected to Hammerfest Hospital in autumn 1960. This provided an opportunity for young people in the county to obtain an education and for the health services to acquire workers. Since its outset, nursing education in

Finnmark has had a clear social responsibility: to educate and recruit nurses in Finnmark County, for Finnmark County. It was realised at an early stage that it was necessary to customise the programme to Finnmark's geographical and demographic conditions. In 1981, teachers were employed in Kirkenes to supervise student practice in Kirkenes Hospital. This eventually led to an ambition to offer a larger part of nursing education closer to students' homes [17]

As early as 1989, decentralised nursing education was proposed for Finnmark. The case was postponed pending funding, but a head of section was appointed and the technology for a programme based in Kirkenes was tested in 1989. Finally, in 1991, decentralised nursing education in Finnmark received funding and commenced. The programme was to be temporary and located in areas with the greatest shortage of nurses based on reports by the county doctor of Finnmark. In the 1990s and parts of the 2000s, funds were earmarked for the decentralised nursing education. In 1995, 1998, 2001 and 2008, programmes were also started in Sami core areas. The Sami are Norway's only indigenous people, based on the Norwegian ratification of the International Labour Organisation (ILO) Convention No. 169, Article 7 [18]. The Sami language is mainly spoken in the northern areas of Norway, Sweden, Finland and Russia and includes eleven dialects. A study on the indigenous perspective in health education in Norway that examined 25 of the 26 health and social science curricula showed that only one curriculum included Sami cultural aspects [19]. This led to the inclusion of the Sami perspective as an important learning outcome in the new curriculum regulations for 25 health and social science programmes in Norway [20]. A new curriculum is currently being prepared, along with a quota system for Sami nursing students through collaboration between Sami University College and the Hammerfest campus of UiT The Arctic University of Norway. The aim of the programme is to recruit from the entire Northern Sami linguistic region. The indigenous perspective was not explicitly explored in this study, but will be touched on as part of the rural challenges in general.

In this study, we will examine and analyse the decentralised nursing programme in Finnmark from 1991 to 2018. The aim is to gain knowledge that can promote recruitment and stability in small health care environments in outlying areas. By finding the strengths and weaknesses of the decentralised programmes, the effect of decentralised education in rural areas can be demonstrated. This may be important for decision makers and universities, who will be able to use the knowledge for educational policy discussions and strategic planning, both nationally and internationally. Our research question is: How can decentralised nurse education contribute to social responsibility in rural Arctic Norway?

Method

Data was obtained following a review and analysis of documents related to decentralised nursing education in Finnmark in 1989–2019. The term document is used for all written sources relevant to the analysis. The documents in question are published and unpublished, public and non-public, internal and external documents from educational institutions, and both contemporary and retrospective. Documents related to budgets and accounts were not included in the data.

Internal data were collected in the university archives; these included a review of the programme for each cohort, minutes of meetings, local statistics, internal evaluations of the programmes, student evaluations, book chapters, local research material, other internal documents, reports and other written material related to the implementation of decentralised education in Finnmark in 1991–2018. Additional data was collected from student records, with anonymised lists of students who commenced the programme and who completed it in normal and extended time, as well as known reasons for extending one's studies or dropping out. The data collection took place from September 2016 to January 2019 and included documentation of fifteen decentralised classes, three of which were still studying at the time of writing. New documents were selected and analysed during the data collection, which made it possible to cross-check and verify the various sources and allowed for them to supplement each other in order to find interrelationships [21]. The data were collected on the basis of White Paper No. 16 "Culture for Quality in Higher Education", which is a key document that clearly presents the social responsibility of education [22]

The documents were carefully assessed and weighted according to their recency and credibility, as described by Stewart and Kamin [23]. They were evaluated on the basis of the context in which they appeared. One challenge was that the material was not organised systematically and several sources had to be cross-checked to ensure the quality of the data. The sources also had a large age span, were aimed at different target groups and had different goals; these factors have been included in the assessment of reliability.

All documents were studied in at least two stages by both authors. The content of the documents was assessed and interpreted in relation to the research question in order to identify relevant elements that coincided [21]. The following items were identified: year, programme model, study site, number of students at start, number of students who completed, number of local authorities, organisation, supervision by teachers and technology. We

also noted changes in the programmes and any reasons for these that we found. In order to facilitate comprehension of the results of the analysis, these are to some extent presented in the form of tables.

The study was reported to and approved by the Norwegian Centre for Research Data (NSD). Ethical aspects have been considered throughout the project period, especially in terms of the de-identification of data on age, gender, place of residence, etc. The university management was strongly involved in the study. All data have been anonymised. Both authors work in the nursing programme and have been involved in planning and managing classes in the off-campus programmes. This increased our awareness of our familiarity with the field under study, which may have affected our assessments. The use of secondary sources can enable results to be more easily checked by others. One strength of familiarity with the field is that the researcher can see connections that are not immediately obvious to an outsider [24].

Results

Explanation of the table: "Locality of sessions" refers to study sites where teachers and students meet and teaching takes place. Hammerfest is the campus for nursing education in Finnmark. The other study sites are large and small towns elsewhere in the county. The distance between the study sites and the campus varies between 150 and 530 kilometres.

The decentralised programme was implemented from 1991 to 2006, and in 2011 it became a full-time (three-year) programme, in parallel with the normal on-campus class, with 30% less scheduled teaching. This is an unusual way of organising decentralised education in nursing [30]. From 2008 until 2018 (except for the 2011 cohort), the programme was part-time and took four years.

Table 3 shows some variation in the rate of completion of the full-time and part-time programmes when students who did not complete in the normal time are included. Commonly, only students who fail to complete in the normal time are included, but this does not give a correct picture of the rate of completion of classes starting at the same time. For full-time classes, completion ranged from 50% to 100% (average 75%), while completion in part-time classes varied between 72% and 53% (average 61%). Causes of dropout have only been clarified for seven of the classes and are mainly personal, such as finances, illness and other life events.

Organisation and supervision by teachers varied between programmes. In some cases teachers were employed specifically at the study sites, while in other

cases teachers from the university campus were always involved in the programme. From 1991 until 2011, 30% of the programme was self-study for all students. The frequency of sessions varied from four to six times a year. Until 2006, the decentralised education was full-time, and the progression was almost the same as for on-campus students. The sessions took place at the university with the on-campus class. Since 2008 (with the exception of 2011), the decentralised programme has been part-time, and the students have had sessions separately from the on-campus class. There have been four or five sessions per academic year. The use of technology to support learning has been adapted as technology has developed, along with requirements for students' prior knowledge of IT.

The organisers of the programmes were forerunners in trying out new technology that enabled both synchronous and asynchronous distance learning between the sessions at the study site. Videoconferencing was introduced in the programmes as early as 1989, but was not used actively in off-campus education until 1991 (Table 4). The use of this technology was then a stated goal and the number of hours of video conferencing was determined for each cohort of students (Table 1). Group video calls and streaming have been possible since 2012, but only in the last couple of years have the programmes and internet speed been adequate for widespread use throughout Finnmark. Video recording of teaching started as a pilot project at Finnmark University College in 2011 and has been used actively since 2012. Since 2014, students have had access to the university's internal pages and databases via VPN.

Tables 1 and 2 also show how recruitment to the programme has been distributed between Eastern and Western Finnmark, based on the location of the study sites. We see that, apart from the 2011 cohort, the decentralised programmes recruited students from many parts of Finnmark. When Kirkenes was the study site, most students came from a large area of Eastern Finnmark.

From the 1991 cohort to the 2012 cohort, only one student out of 253 was not resident in Finnmark. Residence is here considered as living in Finnmark when applying for and starting the programme. From the 2014 to the 2018 cohort, seven out of 87 students were not resident in Finnmark.

Main findings

A total of 191 nurses with a local connection to and knowledge of rural Finnmark have graduated from the decentralised education in the county.

The location of the study site determines where the recruited students come from.

The number of students from outside Finnmark is also increasing in the decentralised programme.

Discussion

In the early history of nursing education in Finnmark, most qualified applicants came from elsewhere in Norway, which led to a period of affirmative action to improve the chances of enrolment for residents of Finnmark and Sami [17]. In the 28 years of operation of the decentralised nursing programme, only eight students have been recruited from outside Finnmark County (see Tables 1 and 2).

A previous study showed that 93% of students recruited locally to decentralised programmes lived in their home area for 4–7 years after graduation, while for on-campus students the figure was 70% [31]. We see increasing numbers of applicants from outside Finnmark. During 2015–2018, almost 50% of full-time students were not from Finnmark [32]. The trend in recent years also shows an increase in the decentralised classes (see Tables 1 and 2). Following the merger of Finnmark University College and UiT in 2013, there is no longer local admission to the decentralised programme, which may have played a part in the increase in the proportion of students from outside Finnmark. Further, the reforms of the tertiary sector, with fewer and larger units, may have led to more uniform administrative solutions that are less geared towards local conditions [33]. For admission from autumn 2019, certain grades will be required for bachelor's degree programmes in nursing nationwide. In rural Finnmark, the proportion of students completing upper secondary school and their grade levels are lower than elsewhere in Norway [34]; this is also seen in rural areas globally. It is too early to say whether the new grade requirements will have implications for nursing education, such as even fewer local applicants.

According to Statistics Norway [1], the shortage of nurses in Norway will be equivalent to 28 000 full-time positions in 2035 unless educational capacity is increased [35]. The nursing shortage is also a global problem [7]. It is especially difficult to recruit nurses and other health care workers to villages in rural areas. An increasing shortage of nurses will exacerbate this problem. In a collaborative project between several countries with rural challenges "Recruit and retain – making it work" [36], a framework has been developed where one of the foundations is to hire people with a local connection. This results in greater stability and more culturally sensitive service provision. Previous research has shown that students taking decentralised

Table 1. Completed decentralised education for students starting in 1991–2014 [25–29,32].

| Year of start | Locality of sessions | No. of students at start | No. of students completed | Recruited from: no. of local communities in | | Outside Finnmark County | Organisation of study programme and use of technology |
|---------------|--------------------------------|--------------------------|---------------------------|---|-----------------|-------------------------|---|
| | | | | West | East | | |
| 1991 | Kirkenes | 12 | 12 | 1 | 7 | | Full-time, 30% self-study, 100 hours of videoconferencing with an on-campus class, four week-long sessions with an on-campus class per year |
| 1995 | Kautokeino* | 15 | 12 | | North Sami area | | Full-time, 30% self-study, 100–120 hours of videoconferencing with an on-campus class, Sami language requirement* |
| 1998 | Kautokeino* | 14 | 10 | | | | Full-time, 30% self-study, 120 hours of videoconferencing with an on-campus class |
| 1999 | Kirkenes | 18 | 13 | 1 | 7 | | Full-time, 30% self-study, videoconferencing, use of LMS, 20% use of supervisor in each of the three locations, five week-long sessions with an on-campus class per year, Sami profile in Karasjok* |
| 2001 | Karasjok* Berlevåg Måsøy | 15 | 12 | 2 | 1 | | |
| 2002 | Kirkenes | 19 | 15 | 1 | 7 | | Full-time, 30% self-study, videoconferencing with an on-campus class, use of LMS, 20% use of supervisor in Vadsø, five week-long sessions with an on-campus class per year |
| 2006 | Kirkenes | 20 | 10 | 1 | 7 | | Full-time, 30% self-study, videoconferencing with an on-campus class, use of LMS, five week-long sessions with an on-campus class per year |
| 2008 | Lakselv* | 45 | 24 | 5 | 4 | | Part-time, 30% self-study, videoconferencing with an on-campus class, use of LMS, one-week course in use of IT, six week-long sessions per year, Sami profile* |
| 2009 | Kirkenes | 39 | 28 | 2 | 8 | | Part-time, 30% self-study, video conferencing and on-campus, use of LMS, one-week course in use of IT, six week-long sessions per year |
| 2011 | Alta | 33 | 27 | 2 | 0 | | Full-time, 30% self-study, no sessions. Video conference planned, but did not work. Use of LMS, one-week course in use of IT, Smart Board, 30% use of supervisor |
| 2012 | Hammerfest | 23 | 14 | 5 | 2 | 1 | Part-time, use of LMS (Frontier), Skype, Smart Board teaching videos, streaming, four sessions per year |
| 2014 | Hammerfest | 24 | 14 | 5 | 4 | | Part-time, use of LMS (Frontier), Skype, Smart Board teaching videos, streaming, four sessions per year |
| Total | | 277 | 191 | | | 1 | |

Table 2. Students currently in decentralised education who started in 2016–2018 [32].

| | | | | | | | |
|--------------|------------|-----------|--------------------|---|---|----------|--|
| 2016 | Hammerfest | 35 | Currently studying | 7 | 3 | 1 | Part-time, use of LMS (Frontier), Skype, Smart Board teaching videos, streaming, VPN, four sessions per year |
| 2018 | Hammerfest | 29 | | 5 | 2 | 6 | Part-time, use of LMS (Canvas), Skype, Smart Board teaching videos, streaming, VPN, four sessions per year |
| | Kirkenes | 23 | | 1 | 4 | | |
| Total | | 87 | | | | 7 | |

Table 3. Completion rates for the full-time and part-time models.

| Programme model | No. of students starting | No. of students completing | Completion rate in % |
|--|--------------------------|----------------------------|----------------------|
| Full-time classes 1991-2006 + 2011 | 146 | 110 | 75 |
| Part-time classes 2008, 2009, 2012, 2014 | 131 | 80 | 61 |
| Total | 277 | 190 | 69 |

nursing programmes in Finnmark stay in the county after graduating and become a stable workforce [31]. Locally recruited nurses are familiar with the local culture, which is often neglected in centrally designed curricula, particularly the Sami perspective [19]. By recruiting and educating locally, we as an educational institution can fulfil the social responsibility of education, which is to provide qualified nurses to the entire county in collaboration with local authorities.

The average difference between the full-time and part-time programmes in the proportion of students completing is not significant (except for the 2006 cohort, in the transition between the full-time and part-time models, where only 42% completed the programme). During this period, there were lower levels of applications to study nursing in Norway in general; this affected the quality of admission and thus the knowledge base of the students starting the programme. This may have meant that these students found it more difficult to complete the programme. Changes in society, including a higher cost of living, may also have been an important factor. It was during this period that local government suggested part-time education because students could then have an income while studying.

Concerns have been expressed regarding the quality of nurses whose education was based on a decentralised model. The programme therefore needs to focus particularly on educational approaches to the rural context with its long distances and challenging climate. This was a key factor in the early decision to use new technology; here, what is now known as

blended learning was emphasised. Blended learning combines face-to-face teaching and online learning activities [30,37]. A previous study showed no significant difference in examination results between on-campus and off-campus nursing students [31]. Today, we see that other professional programmes are decentralised to a greater extent, and UiT The Arctic University of Norway has had decentralised medical education since 2017.

On-campus students in Hammerfest have always come mainly from Western Finnmark. The long distances in the county mean that travel is both costly and time-consuming. Students recruited to decentralised education are often established with a family, and many are involved in primary industries such as fishing or reindeer husbandry. This may explain why the location of the study sites largely determines where the applicants to the decentralised programme come from.

Conclusion

It may seem that 191 graduates from 12 classes is a low number, but in thinly populated rural Finnmark, decentralised nursing education has clearly contributed to recruitment and stability in nursing. Every single nurse with a local connection and local knowledge is of vital importance for health care in rural areas.

Future decentralised programmes should be aware of the importance of where to locate study sites, especially in Eastern Finnmark, which is the area with poorest recruitment to the on-campus programme.

Table 4. Use of technology in the programme.

| YEAR | Video conferencing | Learning management system | Interactive whiteboard | Group video calls | Streaming and recording | Virtual private network (VPN) |
|-------------|--------------------|----------------------------|------------------------|-------------------|-------------------------|-------------------------------|
| 1995-1999 | x | | | | | |
| 2001-2009 | x | x | | | | |
| 2011 | x | x | x | | | |
| 2012 – 2014 | | x | x | x | x | |
| 2014-2018 | | x | x | x | x | x |

We must closely monitor the grade requirements and the increasing proportion of non-local applicants and make national and university decision makers aware of the impact of this. One possibility to consider is to limit decentralised programmes to local applicants.

The goal to fulfil social responsibility must involve collaboration between local government administration, local health authorities, politicians and the university on the basis of established legislation, regulations and plans. Our experiences of decentralised education may have an influence on other off-campus programmes. More binding cross-disciplinary collaboration in health professional education can provide small local communities with more stable health care expertise.

One of the unanswered questions is whether a common curriculum for the entire region addresses the vital skills necessary for nurses in rural Arctic Finnmark. This should be the focus of the next article.

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References

- [1] Statistics of Norway; 2018. Available from: <https://www.ssb.no/befolkning/faktaside/befolkningen>
- [2] De Smedt SE, Mehus G. Sykepleieforskning i rurale områder i Norge; en scoping review [Nurse research in rural areas in Norway; a scoping review]. *Nordisk Tidsskrift Helseforskning*. 2017;13(2). DOI:10.7557/14.4238.
- [3] Wakerman J. Defining remote health. *Aust J Rural Health*. 2004;12(5):210–214.
- [4] du Plessis V, Beshiri R, Bollman RD. Definitions of rural. *Rural and small town Canada analysis Bulletin*. 2001;3(3). Available from: <http://www.statcan.gc.ca/pub/21-006-x/21-006-x2001003-eng.pdf>
- [5] Ministry of Health and Care Services. Samhandlingsreformen. Rett behandling – på rett sted – til rett tid [The Coordination Reform. The right treatment, in the right place, at the right time]. No. 47: 2008/2009. Oslo: Ministry of Health and Care Services; 2008.
- [6] Higher Education Act; 2005. Available from: <https://lovdata.no/dokument/NL/lov/2005-04-01-15>
- [7] World Health Organization. A global survey monitoring progress in nursing and midwifery. Geneva: WHO; 2010.

- Available from: https://apps.who.int/iris/bitstream/handle/10665/70371/WHO_HRH_HPN_10.4_eng.pdf;jsessionid=530460F615C002CACEE3537F10937747?sequence=1
- [8] UArctic Northern Nursing Education Thematic Network. Available from: <http://www.northernnursingeducation.com/>
 - [9] UiT The Arctic University of Norway. Drivkraft i nord: strategi for UiT mot 2022 [A powerhouse in the North: the UiT strategy towards 2022]; 2018. Available from: https://uit.no/om/art?p_document_id=355830&dim=179033
 - [10] Curtis JB, Charles RG. The handbook of blended learning: global perspectives, local designs. San Fransisco: Pfeiffer Wiley; 2005.
 - [11] Ministry of Social Affairs. Helsepolitikken mot år 2000. Nasjonal helseplan no. 41, 1987/88 [Health policy towards the year 2000. National Health Plan No. 41, 1987/88]. Oslo: Ministry of Social Affairs; 1988.
 - [12] Rolstad Ø. Fra vondt til verre – en helsetjeneste i revers? [From bad to worse: A health service going backwards?]. In: Forsdahl A, Svendal A, Syse A, et al., editors. Helse og ulikhet. Vi trenger et handlingsprogram for Finnmark [Health and inequality. We need an action plan for Finnmark]. Tromsø: University of Tromsø; 1989. Available from: <https://munin.uit.no/bitstream/handle/10037/6376/report.pdf?sequence=1&isAllowed=y>
 - [13] Fugelli P. Utkantshelsetjeneste – problem og potensialer [Health services in outlying areas: problem and potentials]. In: Forsdahl A, Svendal A, Syse A, et al., editors. Helse og ulikhet. Vi trenger et handlingsprogram for Finnmark [Health and inequality. We need an action plan for Finnmark]. Tromsø: University of Tromsø; 1989. Available from: <https://munin.uit.no/bitstream/handle/10037/6376/report.pdf?sequence=1&isAllowed=y>
 - [14] Finnmark University College. Annual report. Hammerfest: Nursing Department, Finnmark University College; 1989.
 - [15] Aase A. Levekårene i Finnmark. En sosialstatistisk analyse [Living conditions in Finnmark. A social statistical analysis]. Tromsø: University of Tromsø; 1982.
 - [16] Forsdahl A, Svendal A, Syse A, et al. 1989. Helse og ulikhet. Vi trenger et handlingsprogram for Finnmark [Health and inequality. We need an action plan for Finnmark]. Tromsø: University of Tromsø. Available from: <https://munin.uit.no/bitstream/handle/10037/6376/report.pdf?sequence=1&isAllowed=y>
 - [17] Immonen I. Sykepleierutdanningen i Finnmark 1960-1995 [Education of nurses in Finnmark 1960-1995]. Hammerfest: Høgskolen i Finnmark [Finnmark University College; 1996.
 - [18] The International Labour Organization (ILO). C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169); 1989. Available from: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169
 - [19] Eriksen LT, Bongo BA, Mehus G. Urfolksperspektiv i utdanning. Sykepleierutdanninger i Norge uten urfolk-kunnskap? [Indigenous peoples perspective in education. Nurse education in Norway without knowledge about indigenous peoples?]. *Nordisk sykeplejeforskning*. 2017;7(3):239–249. .
 - [20] Ministry of Education. Forskrift om felles rammeplan for helse- og sosialfagutdanninger [Regulations on a common framework plan for health and social science education];

2017. Available from: https://lovdata.no/dokument/SF/for_skrift/2017-09-06-1353?q=forskrift%20om%20helse%20og%20sosial
- [21] Grønmo S. Samfunnsvitenskapelige metoder [Social science methods]. Bergen: Fagbokforlaget; 2004.
- [22] Norwegian Government. Stortingsmelding nr. 16. 2016-2017. Kultur for kvalitet i høyere utdanning [Culture for quality in higher education]. No. 16; 2016. Available from: <https://www.regjeringen.no/no/dokumenter/meld.-st.-16-20162017/id2536007/>
- [23] Stewart DW, Kamins MA. 45TSecondary Research. 45T 2nd ed. Thousand Oaks, CA: SAGE Publications, Inc.; 1993. 45TSAGE Research Methods45T. Web. Applied Social Research Methods. 18 Sep. 2019. ISBN 0-7879-7758-6. DOI:10.4135/9781412985802.
- [24] Paulgaard G. Feltarbeid i egen kultur – innenfra, utenfra eller begge deler. [Field work in own culture - from the inside, from the outside or both]. In Fossåskaret, Fuglestad Aase, red. Metodisk feltarbeid. Produksjon og tolkning av kvalitative data. [Methodical fieldwork. Production and interpretation of qualitative data]. Oslo: Universitetsforlaget; 2006.
- [25] Eriksen L, Okstad L. Deltids BA i sykepleie. Decentralized part-time bachelor education in nursing]. Rapport/FoU arbeid. Hammerfest: Finnmark University College; 2008. [in Norwegian]
- [26] Blix S, Eriksen L. Erfaringer med desentralisert bachelorutdanning i sykepleie, i tre kommunale studentgrupper 2001-2004. «Et godt lokalt læringsmiljø?» [Experiences with decentralized bachelor education in nursing in three municipal student groups 2001-2004. A good local learning environment]. Hammerfest: Finnmark University College; 2007. [in Norwegian]
- [27] Størdal T, Bongo B, Johansen BK, et al. Samisk perspektiv i sykepleierutdanningen [The Sami perspective in nursing education]. Hammerfest: Finnmark University College; 2001. [in Norwegian]
- [28] Eikeland S, Nilsen G, Eek A. Evaluering av opptak og gjennomføring av fulltids bachelor i sykepleie i Alta [Evaluation of adresponsibility and completion of a full-time bachelor's degree programme in nursing in Alta]. Tromsø: UiT The Arctic University of Norway; 2014. [in Norwegian]
- [29] Bratland RC, Bongo BA. Sykepleierutdanningen og den lokale utfordring. Evaluering av desentralisert sykepleierutdanning i Indre Finnmark fra 1995-98 [Nursing education and the local challenge. Evaluation of decentralized nursing education in Inner Finnmark from 1995-98]. HiF - Forskning 1999:11. Hammerfest: Finnmark University College. [in Norwegian]
- [30] Andersen N, Blix S, Størdal T. IKT i helsefaglig utdanning og praksis [ICT in health education and practice]. In: Blix S, Anderssen N, Størdal T, editors. Helse.digital [Digital health]. Oslo: Cappelen Damm akademisk; 2012. p. 15-25.
- [31] Nilsen G, Huemer J, Eriksen L. Bachelor studies for nurses organised in rural contexts – a tool for improving the health care services in circumpolar region? Int J Circumpolar Health. 2012;71:17902.
- [32] Internal archives on each class from 1989 to 2014, minutes of meetings, statistics, etc. [in Norwegian]
- [33] Michelsen S, Aamodt PO. Evaluering av kvalitetsreformen. Sluttrapport. [Evaluation of the quality reform. Final report]. Norges Forskningsråd; 2007. Available from: <https://nifu.brage.unit.no/nifu-xmlui/handle/11250/279245>
- [34] Huitfeldt I, Kirkebøen LJ, Strømsvåg S, et al. Fullføring av videregående opplæring og effekter av tiltak mot frafall. Sluttrapport fra effektevalueringen av overgangsprosjektet i Ny GIV [Completion of upper secondary education and effects of measures against dropout. Final report from the evaluation of the effects of the anti-dropout project "Ny GIV"]. Statistics Norway; 2018. Available from: https://www.ssb.no/utdanning/artikler-og-publikasjoner/_attachment/342411
- [35] Roksvaag K, Texmon I. Dokumentasjon av beregninger med HELSEMOD 2012 Arbeidsmarkedet for helse- og sosialpersonell fram mot år 2035 [Documentation of calculations based on HELSEMOD 2012 (The labour market for health and social personnel until 2035)]. Report. Statistics Norway; 2012. Available from: <https://www.ssb.no/forskning/mikrookonomi/arbeidsmarkedet/betydelig-underdekning-av-helsepersonell-i-2035>
- [36] Making it work. A framework for remote rural workforce stability; 2019. Available from: https://rmakingitwork.eu/?page_id=603
- [37] Curtis JB, Charles RG, ed. Handbook of blended learning: global perspectives, local designs. San Fransisco: Pfeiffer Publishing; 2006.