

# A change from a nursing specialisation programme to a Master of Science degree in Nursing (MSc)

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61

### 62 **Abstract**

63 **Background:** The Bologna process significantly influenced the change from specialist

64 training in nursing to a master's degree, as it established the goal of developing an easily

65 readable and comparable degree structure in three cycles, identified as bachelor's, master's

66 and doctoral degrees, in European higher education. Educational programmes in nursing

67 specialisation in Norway are therefore evolving from nursing specialist training to a Master

68 of Science (MSc) degree.

69 **Aim:** To describe the development process from a nursing specialisation education to an MSc

70 degree at the Arctic University of Norway (UiT). The paper discusses opportunities and

71 challenges that may be of interest to other educational systems that want to replicate UiT's

72 experiences with changing education in a nursing specialisation to an MSc degree.

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73 **Methods:** The process of developing the nursing specialisation education at UiT into an MSc  
74 degree can be retrospectively described as working from a model inspired by action research  
75 as understood by Coghlan and Brannick’s four cycles of constructing, planning, taking action  
76 and evaluating action. The process lasted for more than three years, from construction in the  
77 beginning of February 2015 to the first enrolment of students in August 2018.

78 **Results:** The result is a master’s programme in nursing, corresponding to 120 European  
79 Credit Transfer and Accumulation System (ECTS) credits, with six nursing specialisation  
80 lines with shared courses and staff: anaesthesia nursing, paediatric nursing, intensive care  
81 nursing, cancer nursing, operating room nursing and general nursing (GN).

82 Challenges associated with ensuring a sufficient academic level balanced with a  
83 sufficient level of practical training are identified and discussed.

84 **Conclusions:** An “umbrella” MSc programme in nursing offers opportunities for shared  
85 courses and staff to provide students with a high level of academic and practical skills. There  
86 is a need to evaluate the programme to examine whether this method of organising an MSc  
87 programme in nursing enhances academic as well as practical nursing skills.

88  
89 **Keywords:** Education; Master’s degree programme; Nursing specialisation

## 90 91 **Background**

92 The nursing profession is one of the oldest existing professions. Florence Nightingale  
93 (1820 - 1910) exerted the most dominant influence in Scandinavian nursing history, and both  
94 educational and hospital plans have been implemented according to her principles [1].

95 In Norway, the first nursing educational programme started in 1868 [2]. In its early  
96 phase, nursing education was typically dominated by hospital-based training, and nurses  
97 obtained their education at institutions other than higher education entities [1, 3]. Reforms in

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5 98 the late 20<sup>th</sup> century changed nursing education from an apprenticeship system to a higher  
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7 99 education system. This transition occurred in Norway in 1983 [4].  
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10 100 To meet the changes and demands in health and nursing care throughout the world,  
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12 101 various programmes have been developed to train registered nurses (RNs) for a variety of  
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14 102 nurse specialisations. The educational programmes are designed for graduating nurses who  
15  
16 103 are competent in meeting patients' and their relatives' needs for safety and high-quality care  
17  
18 104 in increasingly demanding health care systems [5].  
19

20  
21 105 Nursing education in European and Nordic countries has undergone several reforms  
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23 106 during the last few decades, the most significant of which followed from the signing of the  
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25 107 Bologna declaration in June 1999 in Bologna [1, 6, 7]. The aim of the declaration was for  
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27 108 several European countries (29) to create a unified European platform and integration of  
28  
29 109 nursing education into the higher education system [1, 3]. The European Ministers of  
30  
31 110 Education promoted six action lines, one of which was to adopt an education system based on  
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33 111 two cycles of degrees: the undergraduate cycle of three years of study and the postgraduate  
34  
35 112 cycle for masters and doctoral degrees, conditional upon completion of the undergraduate  
36  
37 113 cycle [8].  
38

39 114 On the basis of the Bologna Process, nursing education in Norway is today regulated  
40  
41 115 by Higher Education Acts (Act- 2005-04-01-15), and nursing education is completed during a  
42  
43 116 three-year university or university college programme leading to a Bachelor of Science (BSc)  
44  
45 117 degree. The Bologna declaration also led to a significant change from specialist training in  
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47 118 nursing to a master's degree in nursing, as it established the goal of developing an easily  
48  
49 119 readable and comparable degree structure in European higher education [3]. Internationally,  
50  
51 120 the number of RNs holding a master's degree increased dramatically from 2002-2012 [9].  
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53 121 Similar development has been seen in the Nordic countries where, for example, the number  
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55 122 of health professionals graduating with a master's degree has increased [6].  
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123 In a systematic review, Madi et al. [10] identified multiple positive outcomes of a  
124 master's-level education for healthcare practitioners and revealed changes in graduates'  
125 behaviour, knowledge, skills, status and level of functioning. Master's-level education  
126 advanced graduates' critical thinking and clinical reasoning skills during both assessment and  
127 treatment phases of patient management. This result is similar to that from a systematic  
128 review by Cotterill-Walker [11], who concluded that it is apparent that there are positive  
129 gains for nurses who undertake post-graduate education at the master's level related to  
130 professional and personal qualities that may directly benefit patient care. A cross-sectional  
131 cohort study by Drennan [12] found that graduates with a master's degree in nursing have  
132 statistically significantly higher critical thinking scores compared with nurses commencing  
133 the same degree programme. This result is similar to that obtained by Wangenstein et al. [5],  
134 who found that critical thinking is a significant predictor of the perception of competence by  
135 nurses in master's programmes. Skogsaas and Valeberg [13] found that the added value of a  
136 master's degree to clinical practice is found in the scientific language and critical thinking  
137 skills, as well as in the application of evidence-based practice. Additionally, Hole et al. [14]  
138 found that graduates of a master's programme in evidence-based practice saw themselves as  
139 "change agents" prepared to improve clinical care within a learning organisation.

140 Master's programmes in Norway are equivalent to two years of full-time study and  
141 are credited with 60 European Credit Transfer and Accumulation System (ECTS) credits each  
142 year (Commission). The Arctic University of Norway (UiT) established a master's  
143 programme in nursing in 2012. This programme was basically a theoretical nursing  
144 programme that allowed courses in specialised nursing to be integrated, such as infection  
145 nursing. Specialisations in anaesthesia nursing, paediatric nursing, intensive care nursing, and  
146 operating room nursing remained as continuing education programmes requiring 90 ECTS



147 credits, with cancer nursing requiring 60 ECTS credits, outside of the Master of Science  
148 (MSc) programme.

149 In 2015, a joint venture between UiT and the University Hospital of North Norway  
150 (UNN) resulted in the development of the nursing specialisations of operating room nursing,  
151 anaesthesia nursing, intensive care nursing, paediatric nursing and cancer nursing as part of  
152 the MSc programme degree of 120 ECTS credits. This work was completed with the first  
153 intake of students in August 2018.

154 The aim of this paper is to describe the development process from a nursing  
155 specialisation education at UiT to an MSc degree and to present the results, namely, a  
156 master's programme in nursing with six specialisations. Furthermore, we discuss the  
157 opportunities and challenges associated with changing from a nursing specialisation  
158 education to an MSc degree study. This paper may be of interest to other educational systems  
159 that aim to replicate UiT's experiences with transforming an education in nursing  
160 specialisation to an MSc degree.

161

## 162 **Theoretical approach**

163 The theoretical approach of this paper was influenced by Benner and colleagues'  
164 educational strategies and recommendations for educating nurses for intelligent, skilful and  
165 ethical practice [15-17].

166 Benner et al. [15] argued that the complexity of everyday nursing practice cannot be  
167 learned or captured as decontextualised knowledge. They suggest that greater integration of  
168 clinical and classroom teaching should support the complex, integrated use of knowledge and  
169 skills that nursing practice demands. Furthermore, they emphasise the importance of  
170 experiential learning along with subjects such as supervision through the use of narratives  
171 and learning in skill and simulation laboratories.

172 Benner et al. [17] argue that experiential knowledge is best elicited by situations that  
173 call for knowledge that has been used in similar past experiences. Skilful embodied  
174 performance refers to the successful use of what has been learned in real situations. Benner et  
175 al. [17] further state that developing expertise in acute and critical care practice requires  
176 experiential learning under pressure (situational learning).

### 178 **Process and project organisation**

179 The process of developing the nursing specialisation education at UiT into an MSc  
180 degree can be retrospectively described as working from a model inspired by action research.

181 Action research can have different approaches and models. In our presentation of the  
182 development process from a nursing specialisation education at UiT to an MSc degree, we  
183 are inspired by Coghlan and Brannick's four cycles of action research. Coghlan and Brannick  
184 [18] explain action research as a research cycle that consists of four steps (constructing,  
185 planning action, taking action and evaluating action), with a preliminary step of defining the  
186 context and purpose of the action research project. This paper primarily reflects phases 1-3 as  
187 part of the overall process (Table 1).

#### 189 ***Phase 1a: Construction actions – starting the process in 2015***

190 In this phase, which started in February 2015, the construction action and intention was to  
191 develop a curriculum in education in nursing specialisation for an MSc degree. The Vice  
192 Dean of the Faculty of Health Sciences, in collaboration with the Head of the Department of  
193 Clinical Education at UNN, initiated the process. In response to the initiative, the Head of the  
194 Department of Health and Care Sciences created a project group consisting of five members  
195 represented by teaching staff in the existing MSc programme in nursing, teaching staff in the  
196 existing education in nursing specialisation and a representative from UNN. A part-time

197 secretary (a trained nurse specialist holding an MSc degree) was allocated to the project  
198 group. The project group reported to the existing teaching staff in the MSc programme in  
199 nursing and education in nursing specialisation as a reference group.

200 The time schedule was ambitious, with an application with curriculum to be submitted  
201 to The Faculty of Health Sciences administrative unit by 1st September 2015.

202 As a university, UiT is mandated to accept applications for study programmes that  
203 fully correspond to the national requirements of study supervision regulation. In a letter dated  
204 14th January 2016, UiT rejected the application from the department. The main reason for  
205 rejecting the application was the lack of argumentation showing the advantages of structuring  
206 an MSc in nursing as an “umbrella” programme with included specialisations. Another  
207 reason was that there was no clear demarcation between the learning goals of the programme  
208 and the specialisations. The letter also expressed concern regarding the request for scientific  
209 personnel connected to the programme as such and to the respective specialisations.

#### 210 ***Phase Ib: Construction actions – restarting the process in 2016***

211 In this phase, the intention was to restart the process based on the experiences from  
212 the previous work and responses to the suggested curriculum in 2015. This time, we decided  
213 to organise the work in a more formalised structure. Again, a project group was created,  
214 headed by the MSc nursing programme director. A formal reference group was established to  
215 provide frequent feedback on the process. The leader of the project group reported to an  
216 overall steering group under the leadership of the head of the Department of Health and Care  
217 Sciences.

218 In an active and circular process, a revised curriculum for the MSc programme in  
219 nursing, including six specialisations, was developed and accepted by the overall steering  
220 group in March 2017. This accepted version was submitted for a broad hearing to identified  
221 bodies entitled to comment by 1st August 2017. Most of the questions were from UNN.

222 Interestingly, all the comments raised concerns about how the continued nursing  
223 specialisation, which requires high levels of practical skills, could be upgraded to acceptable  
224 academic standards for the MSc degrees and whether the inclusion of the nursing  
225 specialisation implied a lower academic standard for the existing MSc programme in nursing.  
226 Despite these concerns, the department forwarded the proposed curriculum to the faculty,  
227 and, in a letter dated 7th February 2018, UiT accepted the programme for student enrolment  
228 by August 2018.

229 ***Phase 2: Planning actions - To prepare to implement education in nursing specialisation***  
230 ***as an MSc degree***

231 In this phase, the intention was to prepare and implement education in nursing  
232 specialisation as an MSc degree in August 2018.

233 The staff associated with the existing MSc education and nursing specialisation  
234 education together performed timetable planning for the specialisations and jointly taught  
235 courses in the first semester in autumn 2018. There was a strong focus on the levels and  
236 learning outcomes according to the Norwegian qualification framework in the description of  
237 courses, the timetable planning, the required course reading materials and planning for  
238 students' clinical practice.

239 There were several dialogue meetings between the staff and the heads of different  
240 specialised departments at UNN regarding the required changes. In addition, ad hoc dialogues  
241 were needed to make plans or discuss issues, especially regarding clinical practice.

242 In this phase, staff in the specialisations, such as intensive care or anaesthesia nurses,  
243 also conducted study visits to special departments at UNN to update their knowledge and  
244 practical skills within their respective fields.

245

246 *Phase 3: Taking actions - To implement the education in nursing specialisation into an*  
247 *MSc degree in August 2018*

248 In this phase, the intention was to implement the education in nursing specialisation  
249 under an umbrella with six nursing specialisation lines with specialised and shared courses  
250 and shared staff: anaesthesia nursing, paediatric nursing, intensive care nursing, operating  
251 room nursing, cancer nursing and general nursing (GN).

252 In August 2018, 78 students from the first five specialisation lines enrolled. The  
253 general nursing line had in 2017 enrolled 9 students in the specialisation in infection nursing  
254 and 5 in rural nursing in the existing MSc in nursing programme.

255

256 **Results**

257 Here, we present the results of the master's programme in nursing corresponding to  
258 120 ECTS credits with six nursing specialisation lines with line courses, shared courses and  
259 shared staff, including anaesthesia nursing, paediatric nursing, intensive care nursing,  
260 operating room nursing, cancer nursing and GN, which includes the possibility of including  
261 various options for in-depth studies according to the demands and requests from the clinical  
262 field. The group of students enrolled in August 2018 were divided as follows: 14 enrolled in  
263 anaesthesia nursing, 13 in paediatric nursing, 29 in intensive care nursing, 13 in operating  
264 room nursing and 9 in cancer nursing. According to the present plans, all specialisations  
265 except GN will enrol students every second year. The courses will be conducted over two  
266 years, with 60 credits obtained each year. Each study year comprises two semesters,  
267 providing the opportunity for 30 credits. Cancer nursing will be conducted part time over 6  
268 semesters, where 25 credits are optional courses at the master's level. Within the current  
269 structure, the master's thesis of 30 credits is written in the 4<sup>th</sup> semester. The thesis is  
270 mandatory for the degree; however, students may leave the programme after 90 credits (65

271 for cancer nursing), having obtained the national requirements for nursing specialisation in  
272 intensive care, anaesthesia nursing, operating room nursing, paediatric nursing and cancer  
273 nursing. The master's programme further integrates advanced practice with some variation  
274 between the specialisations according to the credits, number of weeks, and guidance of  
275 students. GN does not include mandatory practical studies. In the following, we will outline  
276 the general structure of the programme, which is also modelled in Table 2.

277

278 ***Semester 1 for specialisations in anaesthesia nursing, paediatric nursing, intensive care***  
279 ***nursing, operating room nursing (30 credits), and cancer nursing (22.5 credits)***

280 The semester is a combination of shared and specialisation-specific courses. The  
281 specialisation-specific courses comprise 20 credits (10 for cancer nursing): 5 credits of  
282 general introduction to the overall responsibility and function of the specialisation in question  
283 and 15 credits of practice (7.5 for cancer nursing) at a basic level within the specialisation  
284 line. Altogether, 10 credits are allocated to shared courses, 5 credits to general nursing  
285 knowledge at an advanced level and 5 credits to advanced medical scientific knowledge.

286

287 ***Semester 2 for specialisations in anaesthesia nursing, paediatric nursing, intensive care***  
288 ***nursing, operating room nursing (30 credits) and cancer nursing (27.5 credits).***

289 This semester is a combination of shared and specialisation-specific courses. The  
290 specialisation-specific courses comprise 25 credits: 10 (15 for cancer nursing) credits of  
291 advanced knowledge on the overall responsibilities and function of the specialisation in  
292 question and 15 credits of practice (7.5 for cancer nursing) at an advanced level within the  
293 specialisation line. Shared between the specialisations are 5 credits of a 15-credit course in  
294 the theory of science, methodology and scientific methods and research ethics in nursing. The  
295 course continues with 10 more credits in the third semester.

296

297 ***Semester 3 for specialisations in anaesthesia nursing, paediatric nursing, intensive care***  
298 ***nursing, operating room nursing, (30 credits) and cancer nursing (15 credits).***

299 In the third semester, during the 10 remaining credits in the theory of science,  
300 methodology and scientific methods and research ethics, the students are expected to develop  
301 a plan for the project that will form the basis of their thesis. The plan, which is presented as a  
302 written protocol with a maximum of 4000 words, forms the basis for the final written exam in  
303 the third semester. The remaining 20 credits are allocated to 5 more credits of advanced  
304 knowledge within the specialisation in question and 15 more credits of field practice (5 for  
305 cancer nursing), in which the students are expected to demonstrate the ability to act in acute  
306 and complex situations and have a high degree of independence throughout the practice and  
307 during practical exams. As mentioned, if all exams are passed, the students may leave the  
308 programme with the requirements that are officially requested for a nurse specialisation in  
309 Norway.

310

311 ***Semester 4 for specialisations in anaesthesia nursing, paediatric nursing, intensive care***  
312 ***nursing, and operating room nursing (30 credits)***

313 The fourth semester is fully allocated to the written thesis. A 30-credit thesis is the  
314 minimum allowed within the Norwegian university system. The course description therefore  
315 clearly outlines the expected outcomes of the thesis. The students are expected to concentrate  
316 their theses around questions connected to their field of specialisation. They are advised not  
317 to plan overly ambitious data gathering but rather to concentrate on literature reviews and  
318 limit empirical studies.

319

320 ***Semesters 4-6 for cancer nursing (55 credits)***

321 Cancer nursing is a specialisation in the master's programme in nursing and is  
1  
2 322 conducted part time over 3 years. It consists of a training component of 65 credits and a  
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4 323 master's thesis of 30 credits. Clinical practice studies comprise 20 of 65 credits and have a  
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7 324 total scope of 14 weeks. The specialisations additionally require students to take courses at a  
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10 325 master's level until they have completed 25 credits before starting the master's thesis. This  
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12 326 could be, for example, courses within leadership, teaching supervision and palliation in  
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14 327 elderly people.

### 16 328

### 18

### 19 329 *General nursing line (120 credits)*

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22 330 General nursing (GN) is a specialisation in the master's programme and are aimed at  
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24 331 nurses with clinical experience in patient-oriented work who wish to deepen their competence  
25  
26 332 in the nursing profession in the exercise and development of the subject. The specialisation  
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29 333 lasts for 3 years with 40 credits per year and provides the opportunity for students to work in  
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31 334 addition to participate in the programme. In the general nursing line, a 40-credit thesis is  
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34 335 written.

35  
36 336 One of the goals in the GN line in the programme is to offer a specialisation in a  
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39 337 topical subject of importance for society. Migration, the rise of antibiotic resistance and the  
40  
41 338 complex context and expectations of what a rural nurse in municipalities in the north must  
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44 339 handle comprise those two specialisations.

45  
46 340 To meet the challenges of being at a multi-campus university in the Arctic with long  
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49 341 geographical distances and a challenging climate, the specialisations have a decentralised  
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51 342 structure with integrated knowledge transition (IKT)-supported collection-based teaching.

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### 54 55 56 344 **Discussion**



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345 Through an extensive process, a master's programme in nursing as an umbrella  
346 programme with six study specialisation lines with study specialisation courses, shared  
347 courses and shared staff has been designed at UiT.

348

349 *How to ensure sufficient academic knowledge?*

350 One of the concerns regarding the transition from a nursing specialisation education to  
351 an MSc was whether it was possible to ensure a sufficient academic level equivalent to that of  
352 other MSc programmes.

353 An overall aim of the programme is to educate specialist nurses with a high level of  
354 practical skills and theoretical knowledge at a master's degree level to be able to care for  
355 patients and their families in complex, acute and long-term situations. Benner et al. [17]  
356 argue that the complexity of everyday nursing practice cannot be learned as decontextualised  
357 knowledge and suggest a greater integration of clinical and classroom education.

358 Furthermore, clinical knowledge or everyday understanding that enables the clinician to  
359 practice in particular situations is best understood and captured in clinical narratives. The  
360 master's programme at UiT emphasises various forms of written assessment to encourage  
361 students to reflect on particular situations and to make connections between their experiences  
362 from clinical practice and the classroom discussion. Further written assessment also  
363 encourages students' ability to develop their scientific language and training in academic  
364 writing.

365 Benner et al. [17] argue that tacit and experimental knowledge are best elicited by  
366 situations that demand the knowledge as used in similar situations. Similar knowledge from  
367 research and theories is brought to mind when the situations demand their use, either through  
368 questions or the nature of the situation. In theoretical education, students present examples  
369 from their own clinical practice (a particular situation or a problem), and this forms the basis

1 370 for a discussion and clinical problem solving with other students in groups or seminars. The  
2 371 examples serve to situate the discussion and require students to select and use relevant  
3  
4 372 science and theory.

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7 373 The curriculum is created to enhance the students' abilities to argue and make  
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9 374 decisions based on knowledge from research, experience-based knowledge and the patients'  
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11 375 knowledge and participation in the concrete situation. This is in accordance with Hole et al.  
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13 376 [14], who demonstrated that a master's programme had given students the ability to reflect  
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15 377 upon current practice, find relevant evidence from research, appraise the evidence and  
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17 378 implement in their workplace what they found. This may also be in accordance with the  
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19 379 findings of Skogsaas and Valeberg [13], who found that the added value of a master's degree  
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21 380 for anaesthesia and intensive care nurses is found in the scientific language and critical  
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23 381 thinking skills it provides, as well as in the application of evidence-based practice. This  
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25 382 finding is also similar to the results of other studies [5, 10] that have demonstrated that  
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27 383 participating in master's level education advances graduates' critical thinking skills and their  
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29 384 abilities to critically discuss research evidence, which enabled them to justify their own  
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31 385 practices.

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34 386 The master's programme in nursing at UiT has shared staff consisting of a  
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36 387 combination of professors, associated professors, clinical specialist nurses and others to  
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38 388 ensure that the student attain advanced clinical nursing skills and academic skills.

### 39 *How to ensure a high level of practical skills?*

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41 391 Another concern regarding the transition from a nursing specialisation education to an  
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43 392 MSc was whether it was possible to ensure a high level of practical skills.

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46 393 Nursing specialisation requires a high level of practical skills, and according to the  
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48 394 national curriculum, a minimum of 45 ECTS credits and a maximum of 54 ECTS credits

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395 should be associated with clinical application. This is in accordance with Benner et al. [17],  
396 who stated that nurses in acute and critical care practices develop expertise through  
397 experiential learning or on-the-ground learning, referred to as situated learning.

398 All students who are enrolled in the master's programme have a minimum of 2 years  
399 of clinical experience as a general nurse from different clinical fields in special health care  
400 and/or municipal health, which is a prerequisite for being enrolled in the master programme.  
401 Clinical practice takes place throughout the programme and in between periods of theoretical  
402 education. Periods of clinical practice enhance learning by integrating the two forms of  
403 knowledge: theoretical and practical knowledge in face-to-face interactions with patients and  
404 their families. To facilitate the students' learning, the supervisor uses the following question:  
405 "Could you tell me which problem you have identified in the particular situation?" The  
406 following questions are examples of other questions asked of students: "Could you tell me  
407 what happened?", "So what are you keeping an eye on?", "What did you see?", "What did  
408 you hear?" This method is similar to that used by Benner et al. [17], who argue that  
409 questions that elicit clinical thinking and reasoning about a particular situation are an  
410 excellent way of encouraging learning from practice.

411 Students in the master's programme will be expected to argue for and make decisions  
412 in their clinical practice based on knowledge from research, experience-based knowledge and  
413 the users' knowledge and participation. Similarly, Cotterill-Walker [11] found that there are  
414 positive gains for nurses who undertake a master's level nursing education, and a particular  
415 component of this is the ability to apply research findings to practice, provide evidence-based  
416 care and increase the response to changes in a patient's condition.

417 Scenario-based simulations using a computerised full body-sized patient simulator  
418 facilitate the mimicry of real-life situations [19, 20] and learning arenas other than clinical  
419 experience, including simulation-based training, are needed to acquire and maintain

1 420 competencies to handle many acute and unforeseen situations [20]. To ensure sufficient  
2 421 practical skills, training using full-scale simulation with advanced patient simulators is a  
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4 422 learning activity in the theoretical part of the education. Participation in simulated patient  
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7 423 care scenarios allows students to develop, refine, and apply knowledge and skills in a realistic  
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10 424 clinical situation as they participate in interactive learning experiences designed to meet their  
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12 425 educational needs. Full-scale simulation may include cardiac arrest, multitraumatised  
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14 426 patients, premature infants or patients with allergic shock and acute respiratory problems.  
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17 427 This is in accordance with Benner et al. [15], who stated the importance of experiential  
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19 428 learning in clinical practice along with subjects such as supervision through the use of  
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22 429 narratives and learning in skill and simulation laboratories.  
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### 26 431 *Implications and further research*

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29 432 Throughout this paper, we have described the results of the process of developing the  
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32 433 nursing specialisation education into an MSc degree. The process took more than three years  
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34 434 from construction to first enrolment of students. The process included a formal organisation  
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36 435 and a structure for dialogues that provided an opportunity for all stake holders, both academic  
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39 436 and clinical staff, to discuss, argue and negotiate until a compromise was found. Both time  
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41 437 and the process itself were found to be highly necessary.  
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44 438 Further research needs to explore, through empirical studies, the programme  
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46 439 pedagogy, outcome and impact on clinical practice after engagement in Master-level  
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49 440 education as described in Table 1, phase 4.  
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### 51 441 **Conclusions**

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53 442 Education in nursing specialisation at UiT is currently included in an “umbrella” MSc  
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56 443 programme. This offers opportunities for shared courses and shared staff offering students a  
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59 444 high level of practical and academic skills.  
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445 We argue that academic and practical skills are not independent of each other but are  
446 tightly interwoven and mutually influence each other.

447

448 **List of abbreviations**

449

450 **Declarations**

451

452 *Ethics approval and consent to participate*

453 Not applicable.

454

455 *Consent for publication*

456 Not applicable.

457

458 *Availability of data and materials*

459 Not applicable.

460

461 *Competing interests*

462 The authors declare that they have no competing interests. All authors are associated with the  
463 master's programme described in this article and all are employed by UiT, the Arctic  
464 University of Norway where this master's programme is offered.

465

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469 *Authors' contributions*

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470 MEK and NE planned the paper, organised and took part in the data collection. MEK, NE  
471 and CD wrote the paper. All authors (MEK, CD, MB, ID, BF, UI, GM, RN, MR, RS, JT, RB  
472 and NE) participated in the discussion and contributed to writing the paper. All authors read  
473 and approved the final manuscript.

474

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**Table 1.** Process

Phase 1 Construction actions	Phase 2 Planning actions	Phase 3 Taking actions	Phase 4 Evaluating actions
Intention To develop a curriculum in education in nursing specialisation for an MSc degree a. 2015 b. 2016	Intention: To prepare to implement education in nursing specialisation into an MSc degree in January-June 2018	Intention To implement the education in nursing specialisation into an MSc degree in August 2018	Intention To evaluate the programme pedagogy and outcomes component of Master-level education
Actions	Actions • Study visit • Dialogue meetings • Ad hoc dialogue meetings	Actions • Dialogue meetings • Ad hoc dialogue meetings	Actions
Data generation • Meeting summaries	Data generation: • Meeting summaries	Data generation • Meeting summaries	Data generation • Meeting summaries • Focus group interviews with teachers • Focus group interviews with students • Focus group interviews with a supervisor in clinical practice • Log books

**Table 2.** Overview of the master's programme in nursing (Anaesthesia, Paediatric, Intensive care, Operating room, Cancer)

Semester	Topic	ECTS
1-2	Function and duties of specialisation nursing (Anaesthesia, Paediatric, Intensive care, Operating room, Cancer)	5 + 10
1	The philosophy of nursing – ontology, epistemology and methodology	5
1	Medical and Natural Science Knowledge	5
1-3	Clinical practice	30
2-3	Philosophy of science, methodologies and methods	15
3	Function and duties of specialisation nursing (Anaesthesia, Paediatric, Intensive care, Operating room)	5
4	Master's thesis (Anaesthesia, Paediatric, Intensive care, Operating room)	30
4-5	Elective courses (Cancer)	25
6	Master's thesis (Cancer)	30