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Runa Brandal Myklebust

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Skilful sailors and natural nurses. Exploring assessments of competence in female- and male-dominated study fields

Runa Brandal Myklebust

Centre for the Study of Professions, Oslo Metropolitan University, Oslo, Norway

ABSTRACT

This article compares educational choice narratives and assessments of ideal competence within and across female-dominated nursing studies and male-dominated nautical science studies. By use of this comparative approach, the article offers new understandings of gendered educational choices and what promotes gender inclusion and exclusion in educational settings. The article finds that previous experience from the field was instrumental in the choice of education made by the gender minority. However, the different valuations of such experience in the two study programmes had implications for the social and academic position of gender minority students.

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Despite vast gains in gender equality in most industrialised nations, the distribution of men and women across occupational structures is still very uneven. Most of the gender segregation in the labour market is due to young women and men making different educational choices (Østbakken et al. 2017). The technical/social dualism which characterises gender segregation in education is self-reinforcing as young women and men continue to make gender-typical study choices, and thus reproduce the labelling of care as feminine and technology as masculine (Faulkner 2000; Barone 2011). Furthermore, the gender minority seems to drop out of their study programmes more often than the gender majority, further increasing the gender gap (Severiens and Ten Dam 2012; Nedregård and Abrahamsen 2018).

There is an extensive body of research on what fuels gender segregation, especially regarding the lack of women in technology and engineering. However, few studies qualitatively compare female and male gender minority students' experiences across different educational fields and examine what contributes to academic and social inclusion across study programmes. Moreover, studies that focus both on choices of education and gender inclusion and exclusion in the educational context – and how these issues relate – are rare (Mastekaasa and Smeby 2008). This article investigates nursing students' and nautical science students' accounts of their educational choices, examines which competences are assigned value in the study programmes, and discusses how this has implications for the students' professional identification and the notions of suitability in the educational domain they have chosen. The article thus contributes to the literature on educational gender segregation both in terms of displaying how gender non-traditional choices come about and by showing how assessments of ideal competence in gender-typed study fields have implications for processes of gender inclusion and exclusion.

According to theories of educational choice, young people about to make study decisions do not consider the whole range of possible opportunities; they are restricted by what appears for them to

CONTACT Runa Brandal Myklebust runamy@oslomet.no Centre for the Study of Professions, Oslo Metropolitan University, Postboks 4, St. Olavs Plass, Oslo 0130, Norway

be the available alternatives (e.g. Hodkinson and Sparkes 1997; Lee and Zhou 2013). These theories hold that young women and men need an expansion in their frame of reference to change which alternatives are considered available and appropriate. Furthermore, studies of what promotes gender inclusion and exclusion in education suggest that the gender minority lacks both professional and social confidence in heavily gender-typed educational fields and professions, and therefore is less likely to persist than the gender majority (Cech et al. 2011; Stott 2007). However, being the underrepresented gender in an educational context does not automatically lead to marginalisation and exclusion, since different educational contexts might harbour different possibilities for gender inclusion and exclusion (Orupabo 2018). This calls for an attention to what promotes students' confidence in their ability to fulfil the knowledge, skills and personal qualities required in gender-typed study programmes. Investigating what competences[1] are assigned explicit and implicit value in nursing and nautical science – and how this relates to gender – provides insight into processes that might promote exclusion and inclusion.

In this study, nursing studies and nautical science studies at a college in the western region of Norway are used as cases of female-dominated and male-dominated study fields. The labour market in the region is highly gender segregated due to the traditionally male-dominated maritime industries. Arguably, this context provides a setting where gendered accounts of work and competence are more pronounced than in regions with more gender-balanced labour markets. I make use of data from participant observation in practical training, and individual in-depth interviews with female and male students, in both programmes. The comparison of the programmes serves two functions. One is to clarify the profile of one case by contrasting it to the other (Kocka 2003). Second, it helps to 'identify questions and problems that one might miss, neglect, or just not think of otherwise' (Kocka 2003, 40). Importantly, the article aims first and foremost to discuss the potential *implications* of the differences observed between the study fields, and not to explain the differences.

Previous research and theoretical perspectives

Research has not agreed on why the gender minority seem to have lower attrition rates in gender-typed study programmes (Severiens and Ten Dam 2012). However, according to seminal contributions in the dropout literature, retention depends on the students being both *socially* and *academically* integrated (Tinto 1987, 1998). Such integration may be especially important for the gender minority (Cech et al. 2011; Seron et al. 2016). In a study of female students as the gender minority in engineering education, Cech and colleagues (2011) introduce the concept of professional role confidence – individuals' confidence in their ability to fulfil the roles, competencies and identity expectations of a profession. They argue that identifying with what is seen as core competence in the profession is crucial to pursuing a career, to persistence and to the feeling of being suited to a profession. Previous research has demonstrated that an individual's perceived ability to meet the competence ideals in educational programmes strongly influences identification and a sense of belonging (Orupabo 2018). Making use of the concept of self-socialisation (Heinz 1999), Orupabo (2018) shows how students' sense of professional suitability is an ongoing learning process, influenced by the competence ideals in specific educational programmes.

Research within studies of professional skills formation argues that the experiences that students have acquired outside their education has not been given sufficient attention (Jordal and Heggen 2015; Smeby and Heggen 2014). The relation between previous experience and what happens in education has been conceptualised as *coherence* (Smeby and Heggen 2014). The concept addresses how the relationships between the different elements of education (i.e. between theoretical knowledge and practical skills) affects professional development in the educational context (Smeby and Heggen 2014). While the coherence literature focuses mainly on learning outcomes, some recent contributions have documented how coherence is also significant for whether and how students identify with the profession while undergoing education (Jordal and Heggen 2015). Jordal and Heggen interpret through interview data how nursing students are 'telling themselves into nursing'

(2015, 111) and argue that the students understand and identify themselves with the profession through their previous life experiences.

What criteria are used to demarcate which individuals and groups are more or less suited to become good nurses and navigators? The boundary approach (Lamont 1992) offers an analytical perspective suitable to analyse and compare what is given value in the two educational settings. This perspective makes use of the concepts of 'cultural tools' or 'repertoires' that are unevenly available across situations and contexts (Lamont and Thévenot 2000). Focusing on which evaluative repertoire the two different educational contexts make available to their students and teachers gives an insight into how the context shapes and constrains the views and vocabularies that create distinctions between individuals and groups. Such distinctions may matter for the inclusion and exclusion of gender. The distinctions individuals draw when they perform this categorisation of people, Michèle Lamont terms 'symbolic boundaries' (Lamont 1992). Focusing on boundary work is a convenient heuristic tool for bringing taken-for-granted criteria of evaluation to light, by exploring what individuals value (Lamont and Molnár 2002). Such an analysis displays whether what is valued is accessible to everybody or limited to some.

Context

Norway is a welfare state with an extensive system of work-family policies, and women's employment rates are high compared to other Western countries (Aboim 2010). But despite gender-equality policies, Norway has a gender segregated labour-market, where women are generally found in health, social work and education sectors, and men in manufacturing and finance sectors (Reisel and Teigen 2014). The labour market in the region where the college in this study is located is highly gender segregated and scores low, overall, on gender equality indicators (NOU 2012: 15). The region has an especially low amount of men in health and social disciplines (Reisel 2014).

Nursing and nautical science are examples of 'professional educations' (Smeby and Sutphen 2015), with a knowledge base consisting of a combination of practical, theoretical, and tacit knowledge (Grimen 2008). The bachelor's degree programme in nautical science includes both practical training in ship simulators and an abstract theoretical knowledge base built up around mathematics and physics. Like the similar engineering bachelor's degrees in Norway, nautical science offers a vocational-route (v-route) programme where students are accepted into higher education programmes also based on vocational education qualifications. The bachelor's degree in nursing similarly contains a combination of abstract theoretical teaching and extensive practical training. The programme requests general university and college admissions certification. However, students may have previous vocational training as health workers before starting the bachelor's degree, and then complete a year of supplementary studies to qualify for higher education. A v-route for nursing studies is not available in Norway today.

Methods and data

The data was obtained from 120 hours of participant observation of practical training and interviews with 35 students in nursing studies and nautical science studies. The region was chosen because of its gender-divided labour market, and the fields of study because of their female- and male-domination. Since I wanted the perspectives of both the gender majority and minority, I interviewed both male and female students. There are more female than male students in the sample because more women than men agreed to participate in interviews, which may relate to the interviewer being female. This might have had implications for the comparison between women and men, although the aim of this article is not primarily to compare male and female students, but the two educational programmes.

The nautical science class at this college comprises about 40 students every year, half of whom have vocational training and experience of working at sea. One of the nautical science classes under study had seven female students and the other had ten female students. The nursing classes consisted of around 150 students, around 10% were men. At this college, a substantial number of

nursing students had a vocational background – over the two years the field work was conducted they constituted 33% and 37% of the total number of students. The students were recruited for interviews after I had observed their training for a few weeks. Most of the interviewees agreed to participate after being asked verbally, while two students answered an email sent out to all students and offered to participate. 15 interviewees were nursing students (8 women) and 20 were nautical science students (11 women). The students were from 18 to 28 years old and were all in the first year of their bachelor programmes. The interviews were semi-structured, lasting from 45 minutes to two hours, and were conducted at the college.

Two interview techniques were used to gain insight into the students' choice narratives and their assessment of what constitutes important and valuable knowledge and skills in their future professions. First, by using descriptive questions (Spradley 1979) about what the students had done before starting this education, information is gained about practice. The descriptive questions were formulated as life history questions, where the students were asked to structure their own story of how they came to choose their line of study, and then follow their own cues (Mason 2002). The second approach was to question participants about the kinds of knowledge and skills they found necessary and important to be a good professional in their fields, and invite them to make explicit the 'criteria of evaluation' (Lamont and Thévenot 2000) they use when they describe what is good nursing/navigating, and who is good at performing it. As such, the interview material allows for grasping which types of knowledge and skills are explicitly recognised and formalised in the two study fields (Mangset 2017), and how this is related to gender. Observing practical training offered the possibility to directly observe if and how gender distinctions were apparent. Observing which of the students took the lead in the practical training and in class discussions, what topics emerged in discussions, and what the lecturers – through their instructions – implicitly and explicitly gave attention to, allowed for identifying what was assigned value and how this was related to gender.

The two study programmes are built up around radically different knowledge bases, being one health profession and one technical profession. However, they share an uneven gender composition, and are both examples of professional educations with theoretical and practical knowledge bases. What is being compared across the two educational contexts is the students' accounts of their educational choices, what types of competence is valued, and how this relates to gender.

Educational decisions and ideal competence

First, I analyse the students' accounts of their choice of education. Second, I analyse what was seen as valued competence in the two fields of study.

The way in

One issue stood out as strikingly similar between the two study programmes – a distinction between the gender minority and the gender majority in how they described their path into the education. Several of the female students in nursing and the male students in nautical science described their choice as based on little or no previous experience. They had heard friends talk about it, they had acquaintances or friends who planned to enrol in the programme, or they had read about the study online, as illustrated by the quotes below:

> I started at utdanning.no[2] […] It's a very good site, a good initiative. So I looked at that list, occupations from A to Z, and I went through it all. And looked for something that caught my interest. And then it boiled down to marine biology and nautical science […]. Without utdanning.no I had never decided on this. So I have to thank that site. […] I had nautical science on top of my list, that was what caught my interest the most. And then I got in. *Christoffer, nautical science*

> I was not sure what I wanted to do. I thought about nursing already [in tenth grade], because I thought that nursing is kind of, yeah it's kind of normal. I didn't know about that many occupations, and I thought that that is probably something I can do. I started vocational training in health work in the first year of upper secondary,

> really because all my friends were going to. So all of the girls [in the tenth grade class] started there, except one. *Siri, nursing*

Male nautical science students and female nursing students did not seemingly need familiarity with the professional field to make their choice of education. Christoffer had no previous experience or knowledge about the profession but reading about it caught his interest and he applied. Siri said that she applied for health work because it was 'normal' and that 'all my friends were going', not needing previous experience to convince her that this was something she would enjoy or feel suited to.

Conversely, many of the female students in nautical science and the male students in nursing had in common that they had some sort of previous experience with, and thereby knowledge of, the professional work they were entering. In their stories of when and where they had first considered these areas of study, they talked about working as 'medics'[3] or serving in the coastguard in the military,[4] observing and assisting their parents or grandparents in their professional life, or doing part time jobs in related professions. According to the stories from the gender minority students, experience from a maritime or medical context was essential for them to make their choice of education. The quotes below may illustrate the stories from the gender minority of how they entered their studies. The female students in nautical science had experience with the profession either from military service in the coastguard, or through fathers or grandfathers in the profession:

> I didn't know what I wanted to do when I was younger, I thought it was very difficult to decide. So, after upper secondary school I did military service [førstegangstenesten] for a year, to have something to do and not just stay home and work. I ended up in the navy, and on a boat, so … *Elisabeth, nautical science*

> R: Was it at random that you ended up in the navy?

> Yeah, I wanted to go to the army, but then it was … They didn't have any openings … Like, I wanted to start studying in the autumn, but they didn't have any openings until January. And then I didn't want to wait at home for half a year. So then I joined the navy, I ended up on a boat and I liked it very much. So, I figured, this is what I want to do, or try at least. I enjoyed myself very much at sea and like being on a boat and stuff. If it wasn't for that I wouldn't be here. Then I wouldn't have a clue …

Another of the female nautical science students said her grandfather served as an important role model for her, influencing her choice of education:

> He dragged me out to sea and onto all the boats in the county. And I've always gone straight to the wheelhouse and just, 'this is where I want to be', sort of. So I think they might have realized it before I did, almost. *Emma, nautical science*

Several of the female nautical science students had fathers and grandfathers as important professional role models, as none of them knew of female navigators in their parents' or grandparents' generation. Some of the male nursing students had persons in their family serving as role models, also men. Importantly, like the female navigator students, the male students in nursing described a previous experience that led them to consider nursing studies:

> Sort of coincidentally, I started vocational training as an electrical repairer after lower secondary, then I did computer electronics the second year. Then I served in the military, as a paramedic. Then I returned and finished the last year [of the vocational training] in space technology. Then I went for my college admissions certification, took a few extra science subjects. But then I applied for nursing studies because I think it's fun to work with people and that sort of thing rather than sitting in an office working with formulas. *Alex, Nursing*

> R: So you hadn't considered nursing studies before this?

> No, not really. It was because I randomly joined the medics..

> When talking about how he decided between occupational choices, he said:

> It was just sort of, what I like and don't like. I'm not really a big fan of maths, not programming either. And I don't want to sit and work theoretically, I would rather do something practical. I figured it was more fun to be out and yeah, do something.

Alex had not pictured himself being a nurse earlier, but after being recruited to medical service during his one-year military service, he decided to change his educational route. Choosing nursing 'out of the blue' seemed unlikely for the male nursing students. Most of them had chosen other, mostly male-dominated areas of study first, and after a few years doing military service or working as assistants in health professions after being unemployed, reoriented towards nursing studies. At age 17 or 18 they did not consider nursing studies, they said, either because it simply never occurred to them as an alternative, or because of 'prejudiced beliefs' about the profession, as one of the students phrased it.

Previous experience seemed instrumental for making their choice of education and an important motivation for the gender minority. How is this previous experience met in the educational context?

Sorts of competence valued

By examining what knowledge, skills and qualities are explicitly and implicitly given value, I aim to grasp views of who belongs and are suited to be good at their job, and how this is related to gender.

Nautical science: 'a smooth sea never made a skilful sailor'

The above quote is taken from a poster that covered the entrance door to the ship simulators at the college. Much of the practical training in nautical science took place in the simulators, where the students trained for their future professional roles. The five simulators are copies of wheelhouses on different types of ships, constructed so as the experience of being on a boat is as authentic as possible. The simulators have large windows overlooking 'the ocean', numerous technical instruments, a table and a light where the paper map is found and instructions on the wall detailing what to do in emergency situations. Some of the simulators also imitate the feeling of being at sea in the way the room moves to resemble waves.

When I attended the students' first lectures in the simulator, the difference between the students with former sea experience and the ones without was obvious. The students with former experience, although few had experience with actual navigation, understood more of the technical terms, some of them were acquainted with the instruments in the wheelhouse, and they seemed to know how to read the map. Furthermore, they had embodied knowledge. They knew where to stand and how to move in the wheelhouse, altering between the key positions in front of the map and the steering instruments, and they did not – as the more inexperienced students had to – twist their body around when figuring out if they were turning the ship portside or starboard. The students with vocational training were especially skilled, but also the students with navy training or more informal knowledge knew the jargon and were acquainted with the instruments and the maps.

This episode illustrates a typical session in the simulator:

> As the students are paired up and are getting ready to enter the simulators, I join Lina and her partner Frank. Walking to the simulators, I notice that Lina has a map and compass tattoo on her shoulder. As soon as we enter the simulator, Lina lay out the map on the table, moves to the instrument panels and start pushing buttons, walks over to the map and checks something, and then walks back to the instruments. Frank observes her. When their journey eventually starts, Lina gives Frank instructions on what to do. As the journey proceeds, they discuss how to solve the situations that arise, meeting and passing other ships while keeping to their planned track on the map.

Since most of the female students had some sort of previous experience and many of them had vocational training, they often took lead in the simulators, as this episode illustrates. Because of the v-route programme, all students were paired up; one student with vocational training and one without. As in this case – where Frank had neither vocational training nor any other experience from being at sea – the distinction between the two is obvious, and the intention is that Frank learns from

Lina's experience. Apparently, previous experience was an advantage when it came to master the practical training.

Furthermore, the students with previous knowledge more often took part in the discussions in class after the simulator sessions. When reviewing the decisions and actions made by the students after each session, questions and comments from the students with previous experience were often the starting point of the discussions, even though the decisions they had made were sometimes, according to the teacher, wrong. In a conversation with the teacher after a day in the simulators, he confirmed the value of the students with experience:

> It works really well; they can go straight in without having to be told everything. However, we must weed out some bad habits, that is a part of it. They have learned some simple solutions, shortcuts. But it is still worth it.

The teacher acknowledges that the knowledge derived from previous experience is not necessarily at one with the curriculum but argues that the gains from the discussions and the advantages of having some students with such knowledge in class are greater than the disadvantages. Although the v-route programme is designed to benefit from the students with vocational training, its valuation of vocational education served also as a valuation of other forms of experience. The teachers assigned value to knowledge gained 'in the field', and thereby included knowledge acquired from other experiences within the maritime context. Some of the students, and especially those with such experience, did question the teachers' versions of 'the right way'. Because 'field knowledge' was highly valued among the students, discussions sometimes occurred between procedures these students had learned at sea, and what was given in the curriculum.

The analysis of the interview material further informed the investigation of the types of knowledge, skills and qualities that were significant. Female student Gina, describing the first weeks of the semester, observed: 'You could really tell that we have been at sea, many of us, not everybody. We really get along.' She continues, talking about the ones without previous experience:

> Some of them have never been on a boat before. They come here, and when we go through something and they ask, 'what is that?', and we are all like 'what?' But then I think, oh well, they know nothing about it.

Illustrative of the distinction was that students with experience were referred to as 'sea people' and those without were called 'school people'. Ole, referring to the advantage he feels in having previous experience, says: 'We have been at sea. We know what it's like at sea. We know that it is a life for us.'

Similarly, when the nautical science students described what a *good navigator* looks like, essentially two categories were emphasised: personal qualities, such as being thorough and calm under stressful situations, and being 'experienced'. The experience and knowledge gained from 'doing the work' was accentuated. Notably, the personal qualities of keeping one's cool under stress were often described as stemming from experience. These quotes from nautical science students illustrate that the arguments they used when defining what it takes to be a good navigator drew on the distinction between having been 'in the field' and not having that background:

> Well, you need some understanding. More than just schoolwork. You need understanding to … There are very many things that can go wrong on a boat, and then you have to understand and know what to do in every situation.

> I feel like here we learn the fundamental stuff to be able to navigate, but what it takes to be a good, steady navigator … that you get from experience and being in situations that are a bit challenging or … having to make difficult judgements.

Recalling the two categories of 'school people' and 'sea people' used to describe fellow students, these quotes came from students in the latter category. Some of the students without experience questioned such statements, and negotiations of the value of previous experience did occur. However, the 'school people' also acknowledged the value of such proficiency and referred to experience from the field when describing what it takes to be a skilled navigator. Importantly, statements of what valued competence consisted of was similarly defined by both women and men, and both women and

men possessed the valued field knowledge. Professional role confidence and identification is arguably especially important for the gender minority (Cech et al. 2011; Seron et al. 2016). In this case, the strong assessment given to field knowledge promotes the social and academic integration of the gender minority and provides the female students with a prominent academic and social position.

Nursing: 'That is something you cannot learn, that is something in

In nursing, the practical training took place in a corridor with separate wards which imitated a hospital corridor or a nursing home. The corridor had illustrative charts and real size models of human anatomy. In the wards, several hospital beds were placed next to each other. The students were often in groups of three, practicing different procedures on each other, on dummies imitating patients or on live models (actors). The students wore nursing uniforms with nametags, the male students in dark or light blue, and the girls in white, pink or purple uniforms.

In practical training in nursing, the distinction between the students with and without some sort of experience in the medical context was less obvious. Although many students had working experience from nursing homes, medical training from the military or vocational training as health workers, this was not as apparent in the training sessions, and distinctions between those with experience and those without was not necessarily convergent with who took the lead in conducting the procedures. When practicing lifting techniques, doing blood tests, taking blood pressure measurements, or in communicating with patients,[5] some of the students seemed more comfortable and had the confidence to take initiative, and this did sometimes – but not always – coincide with who had previous experience and training. Moreover, there was little explicit focus on previous experience in plenary discussions. Experience from being in a medical or health care context was more rarely drawn on in class discussions or when reviewing and discussing the practice afterwards, than what was the case in nautical science. Furthermore, the nursing students underwent practical training in care centres as a part of their first year, which blurred the potential distinction between students with and without previous experience.

The strong focus in nursing on learning and performing the correct nursing procedures,[6] further stressed the 'begin with a clean slate' approach that characterised practical training in nursing compared with nautical science. Salient in the nursing practical training was the focus on 'unlearning' any techniques and practices the students had acquired before embarking on the course. When the students were corrected for their techniques, it was either by simply referring to the correct way according to the nursing procedures, or in the form of a correction of 'bad habits'. Either way, it provided little room for discussions of the (possible) previous knowledge the students had based their decisions on. Compared to the nautical science training, fewer discussions between 'the right way' of doing things were observed. However, some students, for instance the male students with medical training from the military did express frustration over other procedures than what they had been used to. In terms of gender distinctions, none of the cases I observed that involved students taking a lead and acting with confidence were with male students. About one third of the students in the nursing class had vocational training, and all but one of the male students I interviewed possessed previous experience from care centres, psychiatric wards or medical training from the military.

Two of the teachers I talked to during practical training confirmed the observation that knowledge gained from previous experience was not assigned notably high status and value in nursing:

> Teacher: I can tell the difference between the ones who have been in practical training and the ones who haven't.
>
> R: What about the ones with previous experience as health care workers or with other experience? Can you tell?
>
> Teacher: Yes, but this is not necessarily a good thing. No. They may have learnt things wrong.

Another teacher similarly argued that the students were best without previous experience because they had not learnt 'nursing knowledge' and therefore learned things wrongly. The teachers' quotes suggest that having previous experience is not an asset in nursing; rather they

state that starting without any prior knowledge is preferred, since this provides the best conditions for learning. Recalling the lecturer in nautical science stating that in spite of needing to unlearn some bad habits, previous experience is an asset in the educational setting because it provides both practical and theoretical benefits, these quotes confirm the observed distinction between the valuations of forms of knowledge in the two programmes.

In addition to the theoretical and practical knowledge underpinning the nursing procedures, there was a prominent focus on personal qualities in nursing. The qualities largely concerned some sort of relational competence, and it was often referred to as something innate and unlearnable. This may be illustrated by this quote from one of the teachers, stated when she gave feedback in a plenary after the students had practiced with live models:

> You were *present*, and that is something you cannot learn, that is something *in here* [holding her fist on her chest]. Everything can be learnt, about aphasia, about lifting, but *that* you cannot learn. That is about personal qualities, and that is not easily learnt.

The interviews with the nursing students further informed the analyses of valued competence. Arguments of 'doing the work' and the knowledge deriving from 'being in the field', which were important in the nautical science context, were close to absent from the nursing students' criteria when they talked about what it takes to be a good nurse. When describing what characterises good nursing, they referred to theoretical nursing knowledge, like being medically, pharmacologically and anatomically skilled, and having the right personal qualities, such as being caring, patient and calm under stress. Such competence however was rarely related to, or explained as being a result of, practice from the field – for example gleaned from experience with having to make difficult judgements under stress.

The personal qualities required were by the students described as innate and 'not learnable' through education, and thus assigned high value: 'Medical knowledge is important. But what one can't learn to do is how you *are* towards other people'. Another account exemplified how some are cut out to be nurses and others are not: 'You have caring people. There are some who like to provide care, who just automatically is the person who cares for others, and then there are those who are more selfish'. Yet another described a fellow student's lack of suitability like this: 'she just doesn't have the personal qualities to become a nurse'. Following the logic that some are more suited than others, both female and male students described some of their fellow students – women and men both – as not fit to be nurses because they did not have the right personal qualities. Thus, what operated as the clearest distinction between groups of students when describing ideal competence was whether one was 'cut out' to be a nurse in terms of personal traits, and such distinctions were not drawn between female and male students.

Discussion and conclusion

The male nursing students and the female nautical science students resembled each other because both groups accentuated the importance of previous experience for their choice of education. Such experience was described as instrumental by the gender minority and seemed to have a motivational effect. Here, previous experience is defined broadly, and includes working experience, military or voluntary service, and familiarity and experience with the profession through parents or grandparents. The findings are in line with previous studies of gender non-traditional choices of education, which show that the gender minority make their choice of education at an older age than the gender majority, giving time to have other work and educational experience (Mastekaasa and Smeby 2008; Nedregård and Abrahamsen 2018; Williams 1992). Male nursing students especially are documented to be older and have previous experience before starting their studies (Karlsen 2012; Svare 2009). These findings indicate that many young people are not exposed to experiences that make them aware that they might enjoy gender non-traditional work.

Next, the article analyses what competence – understood as knowledge, skills and qualities – was given value in the two educational contexts. To distinguish between what categories of competence

were assigned value I will here use the terms *pre-education knowledge, in-education knowledge*, and *personal qualities*. The analytical category of pre-education knowledge is aligned with the experiences the gender minority described as essential for their educational choice in the previous section. Importantly, the content of the categories was not necessarily different; the distinction between the two types is characterised by *when* the knowledge was gained.

In nautical science, both in-education knowledge and pre-education knowledge was assigned high value by students and teachers, institutionalised through the v-route programme. The v-route programme is designed to benefit from the students with vocational training, but the importance of empirical knowledge also served as a valuation of other forms of 'in the field' knowledge. To be a good navigator, the interviewees argued, knowledge must be gained both from studies, and *in the professional context*. The knowledge of having actually 'been there', in the professional field, gave a certain know-how that was explicitly recognised, making it easy to fit in and prove suitable. Holding or not holding pre-education knowledge proved to be a central criterion of evaluation, creating both academic and social distinctions. Informed by the theoretical perspectives from the symbolic boundary literature (Lamont and Molnár 2002; Lamont and Thévenot 2000), on how context shapes individuals' boundary work by making available different evaluative repertoires, the distinctions the student draw on are interpreted as being embedded in the environment, not created by individual actors. Importantly, both women and men possessed such knowledge. However, since all the female students had some sort of previous experience, and this experience gave them the field knowledge which was highly valued both academically and socially, the female students had prominent positions in an educational context where they were the gender minority.

The personal qualities highlighted in nautical science were related to experience from the field, because experience promotes the ability to keep calm in stressful situations. In nautical science then, the categories of pre-education knowledge, in-education knowledge, and personal qualities were intertwined. In-education knowledge built on insights from pre-education knowledge, and the personal qualities were a product of experience. Thus, the types of valued knowledge, skills and qualities are related, symbiotic, and heterarchical. In this case, this implied gender inclusion, but created distinctions between having and not having field knowledge.

In nursing, in-education knowledge was assigned high value through the focus on performing the correct nursing procedures as detailed in the curriculum. Previous experience was not an apparent distinction between students in practical training, and it was more commonly referred to as 'unlearning bad habits' than as a source of discussion about nursing knowledge. While in-education knowledge was highly valued, pre-education knowledge appeared as something of an impediment. A lack of previous experience seemingly gave the best conditions for learning in-education knowledge. Moreover, experience from the field was not a distinction drawn on when discussing what competence was needed and when discussing who makes a good nurse. The professional knowledge that comes from in-field experience was close to absent in the interviews. The legitimate narratives then – the 'official' discourse of what a good nurse is in this context – seldom contained knowledge gleaned from being 'in the field'. This had implications for gender inclusion, as the male students' route into the education was via experience with the professional field. In addition to in-education knowledge; having the medical, pharmaceutical and anatomical knowledge learned through studying, the possession of the right sort of personal qualities and traits was important; being a caring person. The personal qualities were implicitly and explicitly described as innate and *unlearnable*. In terms of gender distinctions in nursing, both women and men made similar distinctions, and were described as having, or lacking, the valued relational competence. However, male students were rarely seen acting with confidence or taking the lead in practical training. In nursing, the types of valued competence were presented as more detached from each other and less dynamic than in nautical science. The use of different evaluative repertoires does not mean that the pre-education repertoire is absent in the nursing context, but that that it is more sparingly used by fewer people. I found

that a repertoire of field knowledge was more readily available in the nautical science context and enabled the students to employ such references in a wider range of situations.

The concept of coherence can be used to describe the difference between the two contexts. Since learning 'implies the development of meaningful connections to what is already known and experienced' (Smeby and Heggen 2014, 73), the relation between learning and previous experience is important for the development of professional knowledge and skills. However, coherence is also significant for *identifying with the profession* while undergoing education (Jordal and Heggen 2015). According to Jordal and Heggen (2015), the lack of focus in the nursing context on the knowledge the students bring with them to the educational field may have implications for the nursing students' ability to identify with the profession.

According to the gender minority students, previous experience was instrumental in making their choice of education and presented as a core part of their motivation. How this motivation is met in the educational context might affect the degree to which students' expectations are fulfilled and thus their resultant notions of suitability and contentment (Jungert, Alm, and Thornberg 2014). Professional identification is arguably especially important for the gender minority in a professional field (Cech et al. 2011; Seron et al. 2016). In this case, coherence between the different categories of knowledge, skills and qualities promotes social and academic integration of the gender minority, while a disruption between these elements hampers such integration. In nautical science, this provided the female students with a prominent academic and social position. My data suggests that the valuation of the knowledge that comes from 'having been there', in the professional field, promotes the idea that 'this is a job for me'. This is further acknowledged by relating the personal qualities required to professional experience, and thus to something accessible for everybody. Although a substantial proportion of the nursing students had previous experience of some sort – and this was evidently a key source of recruitment of male students – this link between previous experience and expressed social and academic belonging is weaker in nursing. Rather, other features of the required knowledge, such as personal qualities, are more important. The personal qualities are, however, described as innate and unlearnable, detaching them from other elements of education and experience. This provided less prominent positions for the gender minority and other students with previous experience, like vocational training. In nautical science, coherence implied gender inclusion, however creating distinctions along other lines. The difference in valuation is interpreted as an embedded feature of the two contexts, shaping and constraining the views and vocabularies on what constitutes valuable and suitable knowledge and skills. Moreover, it illuminates how gendered choices and a sense of professional suitability is an ongoing process, influenced by the competence ideals in specific educational programmes.

Notes

1. I here make use of a broad definition of competence, defined as all sorts of knowledge, skills and personal qualities that explicitly and implicitly are made relevant in the educational and professional context (Solheim 2002).
2. https://utdanning.no is a government funded online information site about educational opportunities in Norway.
3. Military medical service, where the students have a minimum of three weeks classroom medical training and extensive practical training.
4. Norway employs a weak form of mandatory initial military service where one third of the eligible men and women at the age of 19 are conscripted. No one is forced to serve; only those motivated for service are recruited.
5. Simulations with live models.
6. The procedures are the given approaches and methods for how to perform relevant treatments, as presented in the curriculum.

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Notes on contributor

Runa Brandal Myklebust is a PhD Candidate at the Centre for the study of professions, Oslo Metropolitan University. Her research interests include perspectives on gender and education, sociology of knowledge and professional identity formation.

ORCID

Runa Brandal Myklebust http://orcid.org/0000-0002-4589-8489

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