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# How the Final Swedish Clinical Exam Prepares the Nursing Students for Their Future Challenges-Qualitative Analysis

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## Abstract

The national clinical final examination (NCFE) plays an important role in order to measure the level of knowledge and performance of nursing students. Our findings indicate that the design of the NCFE is beneficial for the students' clinical reasoning and problem solution in the caring situation. The aim of this study was to investigate the experiences of the NCFE from lecturers who corrected the written part examination. A further aim was to study the lectures and the RN during observation in the bedside part of the examination. The NCFE is divided into two parts: a theoretical (written) part and a practical (bedside) part. In nursing education it is essential to assess nursing competencies for the future professional role such as the assessment of clinical competence that has become central to evaluate what outcomes are assessed. In addition, it provides a valuable approach to measure the level of knowledge and performance of nursing students. Future development of the NCFE is necessary regarding the degree to which the examination meets learning objectives and educational results.

## Keywords

Final Examination, Clinical Competence, Nursing Education, Content Analysis

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## 1. Introduction

An important prerequisite for nursing students is to acquire theoretical knowledge about nursing and then to convert this knowledge into evidence-based and patient-related practice (Ekebergh, 2011). This means that nursing students must be able to integrate theory and practice into the clinical context. Several international studies have shown that nursing students find it difficult to translate and apply their theoretical knowledge to the clinical context, suggesting the need to develop novel methods of teaching and assessment that improve clinical competence and clinical reasoning in decision making (Banning, 2008). In Sweden, a bachelor's degree in nursing entails 3 years of full-time study (180 higher education credits). The main subject of the programme is nursing science and the secondary subject medical science. Teaching is organised as theoretical lectures and clinical training at several health care facilities (Öhlén et al., 2011).

Nursing students are expected to have the skills and knowledge required to meet the challenges that lie ahead. Throughout the training of nursing students, clinical skills and reasoning are developed, which form the basis of problem solving in the caring situation (O'Connell et al., 2004). Furthermore, experiential learning is important in knowledge development. Students are now able to apply theoretical knowledge when facing practical challenge and after that they realise that theoretical knowledge alone is not sufficiently reflected in the caring situation (Kuiper & Pesut, 2004).

Today's health care service requires effective use of clinical competence in complex caring situations, suggesting that nurses must be able to make the correct decisions based on comprehensive and sound clinical reasoning. It is thus important to develop an examination that tests this competence (Simmons et al., 2003). Clinical competence is important in nursing and is the foundation of nursing education. The term clinical competence also includes other elements of professional practice, such as collecting information about nursing problems and clinical skills, skills in practical procedures, nurse-patient communication, problem solving and decision making (Boursicot et al., 2011). In Sweden, a model, the National Clinical Final Examination (NCFE), has been developed to determine nursing students' clinical competence (Athlin et al., 2012) and is currently implemented in over half of the Swedish universities offering a bachelor's degree in nursing. The NCFE is a multi-method model employing a reflective approach to test theoretical and clinical skills in a natural setting. In summary, the students show the ability to use knowledge in a specific context, for example, in clinical reasoning to solve a patient problem (Miller, 1990).

## 2. The model for the NCFE

The NCFE comprises two parts: a written part and a bedside part, which are described elsewhere (Andersson et al., 2012). The students are administered the NCFE at the end of the last term, i.e. nearly 3 years after entering the nursing programme. The Board of the NCFE has developed written material and routines to guide the execution of the examination and the criteria for assessment. Verbal information is given to the students regarding the way in which the examination will be conducted. Organised and continuous cooperation is maintained between the faculty and clinical practice throughout both parts of the examination (Athlin et al., 2012). The development of the workplace assessment in the NCFE model began before the introduction of the Bologna process, and the focus is currently on maintaining a clear connection between learning outcomes, learning activities and examination (Biggs & Tang, 2011; Norcini, 2005).

### 2.1. The Written Part

The written part of the examination is performed at the same time by all students at the participating universities. This exam is limited to four hours. The examination is a problem-solving exercise consisting of two patient cases describing realistic care situations in which the patient is followed throughout the care trajectory. As the examination proceeds, the situation and the conditions change and new information about the patient is provided. To ensure fairness and reproducibility in the marking of the examination, the Board of the NCFE provides a template defining criteria for each question. Experienced lecturers in nursing, who are conversant in both clinical nursing care and in the bachelor's programme in nursing, mark the written examination.

### 2.2. The Bedside Part

*The bedside part of the examination is performed after the written part (also lasts four hours). Each student is*

examined separately. The bedside test consists of a clinical examination that can be performed in any care unit as long as the requirements correspond to the competence and qualifications required of a registered nurse. Testing students' bedside performance provides an opportunity to evaluate how their theoretical knowledge is applied in practice (Meah et al., 2009). During the bedside part of their annual clinical placement, the students take care of a patient in need of comprehensive medical and nursing care. The clinical placement may involve inpatient care (hospital care) or outpatient care (community care). The choice of patient is decided upon after careful joint consideration between the student and clinical lecturer. The patient must give his or her informed consent. During the examination, the student is observed by nurse, who is guided by a structured assessment tool that reflects the areas of competence required by registered nurses. The bedside test has a clear structure and consists of three steps: 1) assessment of needs and problems, analyses and planning; 2) implementation and evaluation of nursing activities; 3) reflections and final judgment. In the third step the student reflects on steps one and two together with the RN and a clinical lecturer. Based on the scores in the assessment tool and the nurse's oral report, the clinical lecturer decides whether the student has passed or failed the bedside examination.

In a previous paper we described how nursing students experienced being assessed by the NCFE (Andersson et al., 2012), where the students' considered the interactive approach of the written test, in which the correct answer given on the next page, contributes to their learning, and the NCFE, especially the written part, made them reconsider their education as a whole. The aim of this study was to investigate the experiences of the NCFE from lecturers who corrected the written part of examination. A further aim was to study the lectures and the RN during observation of the bedside part of the examination.

### 3. Methods

#### 3.1. Study Design

The design of the study was a descriptive, qualitative design. In this study the focus was on the experiences on the use of the NCFE in for a Swedish Bachelor of Sciences in Nursing.

#### 3.2. Ethical Consideration

All ethical issues were considered and harm minimised by following the guiding ethical and as the study did not fall under the Swedish Act concerning Ethical Review of Research Involving Humans (SFS, 2008: p. 192), no ethical permission was sought. The participants were fully informed about the voluntary nature of participation, how the data would be treated and the procedures ensuring confidentiality. Informed written consent was obtained from all participants and all participants were informed that they could withdraw from the study at any time without consequences.

#### 3.3. Data Collection

Data were collected during two months through study-specific questionnaires that captured also responses to open-ended questions. The participants consisted of four groups: students, lecturers, clinical lecturers and nurses from 10 Swedish Universities collaborating in the NCFE (Table 1). The questionnaire also included open-ended questions where the participants in this study were asked to describe their experiences of participating in both parts of the NCFE: 1) written part and 2) bedside part, and also views of the examinations tools.

In this study we selected from the study-specific questionnaire the participants' answers.

#### 3.4. Data Analysis

The text was subjected to qualitative content analysis (Graneheim & Lundman, 2004) was used. The analysis started by reading the participants' answers as a means to acquire an understanding of the overall NCFE, as well as to capture essential features of the text. Relevant parts of the data included their experiences over time, aspects about the organisation and how it is to be an RN. The text was read and re-read to build a general impression of the whole material and then sentences describing the participants' experiences of the examination were identified. Single words or short sentences were used for the coding of vignettes. Codes with a similar content were grouped into categories and outcomes formulated. In this step the main authors (KZ & PLA) condensed the

**Table 1.** Characteristics of the participants in the study.

		Lecturers N = 28	Clinical Lecturers N = 98	Nurses N = 388
Gender	Female; %	96	94	94
Age	Median, years (min-max)	55 (35 - 65)	52 (36 - 64)	44 (25 - 64)
Qualifications	Reg. Nurse, %	54	42	77
	Advanced Nurse, %	46	58	23
Highest academic degree	BSc (180 ECTS), %	-	8	57
	MSc (60 ECTS), %	79	85	8
	MSc (120 ECTS), %	4	4	1
	PhD (420 ECTS), %	17	5	-
Pedagogical qualifications	Supervisor education, %	-	-	79

codes to filter out irrelevant information. After the authors had reached agreement, the validation was completed by KZ while PLA selected the most important information from each category. Finally, the information of most importance emerged in the theme and six categories describing the participants' experiences of the written and bedside parts of the examination. The theme was based on the text as a whole, with the contents of the categories reflecting what the lecturers and nurses felt about the two tests of the NCFE. To strengthen the objectivity of the study the other authors went through the entire results and related the findings to the data.

## 4. Results

The results showed participating lectures and RN's experiences of the NFCE. This reflects the six categories and the theme describe a complex of using written part and bedside part of the NFCE, and challenging for nursing education.

### 4.1. Written Part

#### 4.1.1. The Students' Clinical Competence Is Clearly Seen

The written part of the examination provides lecturers with information on the level of the students' clinical competence, the lack of knowledge can be seen in the teacher, which is described in the following example. "Lectures at the university were really provided with a better picture of the students' level of knowledge". The written part was described as a good complement to the bedside part. The written part focused on the knowledge required of a newly graduated nurse. "This is a challenge of the written part of the examination, which systematically tests the minimum level of knowledge required". Despite that this part of the examination is written, the lecturers stated that it helped the students to integrate their theoretical and practical knowledge into clinical reasoning. "I would like to point out that the written examination summarises and combines the different parts of the programme". The written part also represented an actual health care problem and the case was described as realistic, which gave credibility to the NCFE. "This is a strength the students need in order to reformulate their knowledge to solve practical problems in their later working life".

#### 4.1.2. Correction of the Written Examination Is Fair and Reliable

The lecturers who corrected the written part of the examination stated that they thought that the template used to define the criteria for each question afforded uniformity and reliability in assessing the students' responses. "The examination reflects the diversity of the knowledge in the nursing programme and provides evidence of the areas in which knowledge is most important". The lecturers also stressed that the template contributed to a sense of fairness and uniformity in student performance. "I usually find the marking template clear and reliable, and we often mutually agree on our marking of student answers, which is strength". In the dialogue between lecturers from different universities synergistic benefits were identified in both the level and content in the examination by sharing their marking experiences. "Strength of the written part is the standardisation of the marking template for this part of the examination, which ensures accuracy and reliability". "Our discussions led to thoughts concerning a more reliable marking template for the next written part examination". Another benefit was that the level of education and content of the programme at each participating university could be compared,

allowing for the possibility that the programme could be developed and improved.

Despite the criterion-based marking template, the lecturers identified a weakness in the marking process. In some cases the questions were too general, leaving room for interpretation concerning the grading process. “I sometimes thought the questions were too general and left room for interpretation, which could be a weakness”. Another weakness pointed out in the correcting process was the lack of stringency and that the level of difficulty among questions varied. “A small weakness in the construction of the exam is the range in marks for different questions”.

## 4.2. Bedside Part

### 4.2.1. Prepare a Student for Future Challenges

The clinical lecturers recognised that the bedside part of the examination promoted the interaction between universities and healthcare organisations during the planning and performance of the examination. The clinical lecturers expressed a strong desire for a valid and reliable assessment of the students’ ability to assimilate relevant facts. The evaluation identified a number of opportunities for developed along the examination, which was carried out as both a learning process and as a reflection of future challenges. “I feel that a detailed assessment of the future nursing profession is being carried out”. The bedside part of the examination provided the students with an overall assessment of their ability to work according to the structured nursing process. “I believe that the students’ clinical competence is elucidated and assessed”. The opportunity of involvement in a real care environment during the bedside examination created interactions between health professionals, patients and students. “This can be described as ‘assessment in action’”, which affords the student challenging yet stimulating experience. The examination was structured and the clinical lecturers gave the students an opportunity to ask questions during the third step, “Reflections and final judgment”. “It is important that each student has the opportunity to show that he or she can plan and provide optimal nursing care”.

### 4.2.2. Balancing Various Conditions during the Bedside Examination

A number of difficulties were identified during the bedside examination, including finding an optimal and safe assessment as viewed from the perspective of the clinical lecturers. Another weakness that emerged was the diverse knowledge and experience of the nurses. “I feel that several factors affect the result, for example, whether the student feels comfortable with the nurse”. The assessment criteria for the bedside examination cause some degree of interpretation as to whether a student will pass or fail. “There are no guidelines regarding what constitutes failure”. Other difficulties included non-uniform assessment because of the different levels of ability of the nurses and the varying degrees of difficulty in the actual caring situation. “At our clinic, several of us think that the assessment tool should be revised and improved”. The caring situation was perceived at times as an uncertain variable in the evaluation of student knowledge, primarily because the choice of patient meant that different interpretations could be given regarding student performance. “I think the bedside tests can vary depending on the kind of clinic, which is good”.

### 4.2.3. Striving for Objective Assessment

The nurses felt there were some weaknesses in the bedside examination, although this was somewhat dependent on the patient care required. The nurses said that the choice of patient, the care setting and the organisation could all affect the assessment of the bedside test. “The nurses should adapt to the way of thinking so that examination reflects the student’s ability in real patient situation”. The severity of the cases varied depending on the patient chosen for the NCFE, but the nurses made an effort to follow the assessment criteria and to be objective observers during the examination. “Planning the examination requires preparation and it can sometimes be difficult to find cases that cover all areas of care, but it usually sorts itself out in the end”. Another aspect affecting objective assessment was variation in the descriptions and interpretations of student performance. “We try to be objective by avoiding subjectivity, but in the end the assessment may depend on the nurse’s ability to be objective”.

### 4.2.4. How Theory and Practice Create a Potential Nurse

The nurses felt that the NCFE, in the development of student learning, was supportive of nursing knowledge. Moreover, the nurses believed it sufficiently assessed the qualifications required of a newly graduated nurse.

“You can see that theory and practice are brought together in the bedside part of the examination”. During the bedside test, students had the opportunity to demonstrate what they had previously learned in the classroom. “The student has the opportunity to show how well he or she can apply theoretical knowledge in a real setting”. To obtain confirmation of being ready to work independently and to enhance students, “The students think out loud, so that I get a good idea of how they reason when assessing caring situation”.

The theme was expressed in this way: The NCFE is perceived as being beneficial for students as it requires them to solve problems. The written part focuses on the knowledge required of a newly graduated nurse. “This is strength of the written part of the examination, which systematically tests the minimum level of knowledge required”. The bedside part included an actual health care problem and was therefore described as realistic, which gave credibility to the NCFE. “This is a strength that the students need in order to reformulate their knowledge to solve practical problems in real life”. Taken altogether, the results indicate that NCFE exam suggests that education must be outcome oriented.

## 5. Discussion

The aim of this study was to evaluate the experiences of lecturers who corrected examination papers, the clinical lecturers and the nurses of the NCFE and pay attention to clinical practice. The study showed that the combination of the written and bedside parts of the examination accurately evaluates whether the student has reached the clinical competence required of a graduate nurse. The National Clinical Examination is implemented in collaboration with the university and the students’ clinical training unit (Athlin et al., 2012). As the same time, clinical competence of newly registered nurses has become an important issue related to professionals’ standards and patient safety (Johansson et al., 2014). Such an approach is valuable because of the identified need for dialogue among staff nurses in preparing them for contact with students and for their supervisory role in modern workplace-based education (Norcini and Burch, 2007). The reliable and valid assessment of clinical competence is complicated, comprising a complex learning process that integrates knowledge, skills and attitudes (Al-Kadri et al., 2012; Smith Higuchi & Donald, 2002). In our study the major finding was the opportunity to test the problem-solving skills of student nurses in a real-life nursing situation. Another finding was that the nursing care situation arranged in the bedside part of the examination was similar to real-life health care interactions. Jerlock et al. (2003) noted that a unique patient and caring situation requires reflection and problem-solving techniques to strengthen clinical reasoning in relation to nursing activities. The results identified in the written part are the reliability in determining the students’ level of knowledge on a national scale. In health care education it is imperative to assess the competencies (e.g., clinical competence) that are essential for the professional role in order for nursing students to prepare themselves for future professional duties. According to a systematic review by Rochmawati & Wiechula (2010), there was insufficient evidence to draw any conclusions as to the most effective educational strategies to improve health care professional students’ clinical reasoning ability.

However, the written and bedside examinations are more than an assessment of students’ declarative knowledge. The format of the examination plays an important role in nursing education in the sense that the problem-solving ability of the student becomes apparent to both the student and the clinical lecturer. Furthermore, the NCFE provides nursing students with a greater degree of confidence and awareness of their clinical competence (Andersson et al., 2012).

The assessment of the students’ clinical competence was affected by the differences in conditions during the bedside part of the examination, which was largely due to human and organisational factors. However, there was also an understanding regarding the circumstances of the clinical lecturer and the nurse. The bedside examination identifies the imbalances between specific requirements and resources. Judgment of the nursing students tends to focus on patients’ functional capacities and resources in such a way as to help patients achieve a balance that satisfies them as much as possible, which nurses seem to achieve through an objective assessment of the bedside examination. However, our previous study on the opinions of nursing students (Andersson et al., 2012) showed that this test was more important than other tests and assessments during their training. One of the most useful ways of findings describes how theory and practice in conjunction create a potential nurse. Nursing requires broad knowledge and even nurses have great difficulty defining this concept. For nurses to make sound decisions, they must be familiar with what constitutes the area of responsibility of a nurse, as well as possess strong critical thinking and problem solving skills. The role of the nurse in health care has traditionally involved providing patient care in two domains: to delegate medical care and to comfort and reassure the patient (Ziegert

et al., 2007). The NCFE has been shown to help students make the transition from nursing student to qualified nurse (Andersson & Edberg, 2010). Knowledge and critical thinking play a crucial role in the bedside part of the examination. Smith et al. (2004) also discussed nursing students' use of intuition in their care-providing activities. This aspect becomes clear in the NCFE since the care-providing activities may vary, and the conditions are never consistent due to the human aspect in the care of the patients, which challenges the students' intuition.

Several studies have demonstrated the difficulty in developing high-quality written and bedside exams, especially in the context of clinical training (Norcini, 2011). A few weaknesses were identified in our study regarding the bedside examination, namely choice of the caring situation, place and time of assessment and different caring approaches of nurses. Norcini (2005) described the importance of sophisticated content and skills, which are difficult to implement at the clinical education level. Assessment is a critical component of the educational skills and in addition the relation between nurses and students can adversely affect the validity and reliability of the assessment process. Hatfield & Lovegrove (2012) reported that familiarity with the assessment tool and its application could increase assessor confidence. Preparation of the assessors is therefore important as well as carefully designed information, provided in preparation for the execution of the test. Finally, several significant challenges remain in the NCFE, including reliability of the written part, equivalence, stakes, relationships, the need for an evidence-based scoring model for the written examination and criteria validity in for the bedside examination.

## 6. Conclusion

The present findings show that lecturers, clinical lecturers and nurses believe that the NCFE is beneficial in which it stimulates the nursing students to solve problems and demonstrate their skills and knowledge in a real care setting. The examination must be further developed to ensure that learning objectives and educational results have been achieved, and that the examination is useful in terms of accountability and sustainability. Finally, we suggest that further research is needed to assess nursing education in relation to the level of clinical competence of nursing students.

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