



Assessing the competences associated with a nursing Bachelor thesis by means of rubrics



Llaurado-Serra M., Rodríguez E., Gallart A., Fuster P., Monforte-Royo C.^{*}, De Juan M.Á.

Nursing Department, Faculty of Medicine and Health Sciences, Universitat Internacional de Catalunya, Sant Cugat, Spain

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ABSTRACT

Background: Writing a Bachelor thesis is the last step in obtaining a university degree. The thesis may be job- or research-orientated, but it must demonstrate certain degree-level competences. Rubrics are a useful way of unifying the assessment criteria.

Objectives: To design a system of rubrics for assessing the competences associated with the Bachelor thesis of a nursing degree, to examine the system's reliability and validity and to analyse results in relation to the final thesis mark.

Design: Cross-sectional and psychometric study conducted between 2012 and 2014.

Settings: Nursing degree at a Spanish university.

Participants: Twelve tutors who designed the system of rubrics. Students (n = 76) who wrote their Bachelor thesis during the 2013–2014 academic year.

Methods: After deciding which aspects would be assessed, who would assess them and when, the tutors developed seven rubrics (drafting process, assessment of the written thesis by the supervisor and by a panel, student self-assessment, peer assessment, tutor evaluation of the peer assessment and panel assessment of the viva). We analysed the reliability (inter-rater and internal consistency) and validity (convergent and discriminant) of the rubrics, and also the relationship between the competences assessed and the final thesis mark.

Results: All the rubrics had internal consistency coefficients > 0.80. The rubric for oral communication skills (viva) yielded inter-rater reliability of 0.95. Factor analysis indicated a unidimensional structure for all but one of the rubrics, the exception being the rubric for peer assessment, which had a two-factor structure. The main competences associated with a good quality Bachelor thesis were written communication skills and the ability to work independently.

Conclusion: The assessment system based on seven rubrics is shown to be valid and reliable. Writing a Bachelor thesis requires a range of degree-level competences and it offers nursing students the opportunity to develop their evidence-based practice skills.

1. Introduction

The European Higher Education Area (EHEA) has promoted an educational model based on the development and assessment of professional competences (European Commission, 2006). It is generally agreed that professional competence involves the combination and integration — not merely the summation — of three attributes, namely the knowledge, skills and attitudes required to fulfil a certain role in a given context (Villa and Poblete, 2007).

Within the framework of the EHEA one of the requirements for the award of a university degree is that the student writes and defends a Bachelor thesis (European Commission, 2006). The Bachelor thesis is primarily an independent and original piece of work which students

produce under the supervision of a tutor (Lundgren and Robertsson, 2013). In the context of nursing degrees this thesis may take different forms: it may be job-orientated (Lundgren and Robertsson, 2013), involving, for example, a case study, the design of a health education programme or the design or update of nursing clinical guidelines; alternatively, it may be more research-orientated (Tuvevsson and Borglin, 2014), for instance, a literature review or a more formal research project. Although the form and content of Bachelor theses may be left to the university's discretion, the work produced must serve to demonstrate that the student has acquired the associated competences that are set out in the degree syllabus (Lundgren and Robertsson, 2013). In this respect, the Bachelor thesis may be regarded as an integrative learning opportunity that can encourage intellectual curiosity, introduce

^{*} Corresponding author at: School of Medicine and Health Sciences, Universitat Internacional de Catalunya, Josep Trueta s/n, 08195 Sant Cugat del Vallès, Barcelona, Spain.
E-mail address: cmonforte@uic.es (C. Monforte-Royo).

students to the field of research and provide them with useful tools for their future professional practice (Gallart et al., 2015).

Assessing a Bachelor thesis and its associated competences is not, however, a straightforward task. On the one hand, the various parties involved (the student, the supervisor and the assessment panel, among others) may have different views regarding the value of the work. Furthermore, the assessment of competences is invariably complicated (Norcini et al., 2011) since they usually take the form of theoretical postulates that first need to be operationalised into observable and measurable indicators (Villa and Poblete, 2007; McGill et al., 2013).

One recent study described the development and validation of a system for assessing the Bachelor thesis based on three rubrics related to the drafting process, the dissertation and the viva (González-Chordá et al., 2016). The study showed that the rubrics had adequate internal consistency, but the authors did not report results for the competences assessed; the rubric items served as indicators for assessing the process of drafting the thesis and the final product, but they were not linked to specific competences set out in the degree syllabus. To our knowledge, no published study has so far analysed the validity of a rubric-based assessment system of indicators that operationalise the competences which nursing students are meant to acquire and demonstrate when writing a Bachelor thesis.

Consequently, the aims of this study were: a) to design a system of rubrics for assessing the competences associated with the Bachelor thesis of a nursing degree; b) to study the reliability and validity of this system of rubrics; and c) to analyse the results obtained for each rubric and each competence in relation to the final thesis mark.

2. Methods

2.1. Ethical Considerations

The research was approved by the Committee of the university's Department of Nursing. The data was collected from the original files and transferred to an anonymous database in order to preserve the students' confidentiality (Declaration of Helsinki).

2.2. Study Design

A cross-sectional and psychometric study was carried out. An assessment system based on rubrics was developed by a group of tutors from the Bachelor thesis course of a nursing degree. This system was subsequently implemented to assess all the theses submitted by students in the 2013–2014 academic year.

2.3. The Assessment System

The assessment system comprised seven rubrics encompassing the nine competences (basic (BC), general (GC) and specific (SC) competences) which nursing students at our university have to develop and demonstrate in the writing of their Bachelor thesis (Table 1).

The system for assessing these nine competences was developed by a working party of 12 course tutors. Over a series of four meetings the tutors agreed on a set of seven rubrics for assessing the nine competences (Table 1). The resulting proposals were analysed and approved by all 12 tutors. A more detailed description of the process of developing the rubric-based assessment system can be found in the Appendix.

The rubrics assessed a median of six competences each, with the exception of Rubric 7, which was designed specifically to assess the competence of oral communication skills (the viva). With respect to competence BC21, referring to oral and written communication skills, it was decided that these two skills would be assessed separately. By contrast, it seemed appropriate to assess together the competences BC23 (ability to analyse and synthesise) and BC19 (ability to make decisions based on critical thinking), since they imply similar learning

Table 1

Competences associated with the Bachelor thesis of the nursing degree and rubric system developed.

Competence definition	
Basic competences	
BC12	Be familiar with and observe the ethical code of conduct for nurses in Spain, understanding the ethical implications of health in a changing global context
BC19	Ability to make decisions based on critical thinking and reflective practice
BC21	Oral and written communication skills
BC23	Ability to analyse and synthesise
BC29	Familiarity with scientific terminology in another language (English)
General competences	
GC16	Familiarity with health information systems
GC22	Use and management of information and research
GC24	Ability to work independently
Specific competences	
SC25	Knowledge of the field of study
Rubrics	Description
1	Drafting process
2	Assessment of final written thesis
3	Self-assessment
4	Peer assessment of final written thesis
5	Students' proficiency in the role of assessor
6	Assessment of final written thesis
7	Oral communication skills (viva)

BC = basic competence; GC = general competence; SC = specific competence. The numbering used to code the competences corresponds to that used in the nursing degree syllabus.

outcomes. Each competence was linked to a median of four indicators, each of which was rated on a five-point Likert scale ranging from 1 (lowest rating) to 5 (highest). However, we also had to consider that the Bachelor theses submitted by nursing students at our university may be job-orientated or research-orientated. Thus, depending on the nature of the Bachelor thesis some competences will be more relevant than others, and therefore the 12 tutors agreed on a system for weighting the importance of each competence according to the type of thesis. These weighted competence scores could then be used to calculate the total score for the corresponding rubric, taking into account the type of thesis, and the final mark could then be calculated by considering the percentage contribution of each rubric (for more detail see Table A1 and Table A2 in the Appendix).

2.4. Subjects

The subjects in this study were final-year nursing students who submitted and defended their Bachelor thesis during the 2013–2014 academic year (n = 76).

2.5. Procedure and Data Collection

Each rubric was completed by the assigned assessor(s) at a point in time that was determined by its objectives and by the teaching guide for the Bachelor thesis course. There were no missing values in the data collected.

2.6. Statistical Analysis

For quantitative variables, data are expressed as median and 25th and 75th percentiles (p₂₅-p₇₅). Qualitative variables are described in terms of absolute and relative frequencies. Non-parametric tests were used for all analyses due to the non-normal distribution of the variables.

The competence SC25 (Knowledge of the field of study) was

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