



## Assessment of bachelor's theses in a nursing degree with a rubrics system: Development and validation study



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### ARTICLE INFO

#### Article history:

Accepted 24 November 2015

#### Keywords:

Nursing student  
Nursing education  
Bachelor's thesis  
Rubrics  
Evaluation

### SUMMARY

**Background:** Writing a bachelor thesis (BT) is the last step to obtain a nursing degree. In order to perform an effective assessment of a nursing BT, certain reliable and valid tools are required.

**Objectives:** To develop and validate a 3-rubric system (drafting process, dissertation, and viva) to assess final year nursing students' BT.

**Design:** A multi-disciplinary study of content validity and psychometric properties. The study was carried out between December 2014 and July 2015.

**Settings:** Nursing Degree at Universitat Jaume I. Spain.

**Participants:** Eleven experts (9 nursing professors and 2 education professors from 6 different universities) took part in the development and content validity stages. Fifty-two theses presented during the 2014–2015 academic year were included by consecutive sampling of cases in order to study the psychometric properties.

**Methods:** First, a group of experts was created to validate the content of the assessment system based on three rubrics (drafting process, dissertation, and viva). Subsequently, a reliability and validity study of the rubrics was carried out on the 52 theses presented during the 2014–2015 academic year.

**Results:** The BT drafting process rubric has 8 criteria (S-CVI = 0.93;  $\alpha$  = 0.837; ICC = 0.614), the dissertation rubric has 7 criteria (S-CVI = 0.9;  $\alpha$  = 0.893; ICC = 0.74), and the viva rubric has 4 criteria (S-CVI = 0.86;  $\alpha$  = 0.816; ICC = 0.895).

**Conclusion:** A nursing BT assessment system based on three rubrics (drafting process, dissertation, and viva) has been validated. This system may be transferred to other nursing degrees or degrees from other academic areas. It is necessary to continue with the validation process taking into account factors that may affect the results obtained.

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### Introduction

Nursing education in the European Union is undergoing major changes promoted by new educational policies that culminated with the European Higher Education Area (EHEA) implementation in 2010. European Directive 2005/36/CE (The Council of the European Union, 2005) sets the minimum training requirements for the free movement of nursing professionals within the European Union.

The harmonization of the education systems in Europe means adopting new learning and assessment methods that focus on the student, on the process and skills acquisition. One of the requirements

that arise as a result of adapting the curricula to the EHEA is the development and defending of a bachelor's thesis (BT) (Gallart *et al.*, 2015). Some countries have a long standing tradition of BTs (Kapborg and Berterö, 2002) (Baker *et al.*, 2014); however, the organization and assessment of a BT is a challenge for the new nursing degrees in Spain.

### Background

Nursing education in Spain is no stranger to the changes brought about by the EHEA (Zabalegui and Cabrera, 2009). Nursing degrees in Spain increased from 3 to 4 years in 2010, with at least 50% of clinical training included in the curriculum and the fulfilment of a compulsory BT in order to graduate with a nursing degree (Spain, Royal Decree, 1393/2007) (Spain, ORDER CIN/2134/2008).

Spanish legislation establishes that the BT must carry between 6 and 30 ECTS, it must be done in the last stage of the course curriculum, and it must be aimed at assessing the skills associated with the degree studied (Spain, Royal Decree, 1393/2007). It is a multi-disciplinary task related

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to the various subjects included in the curriculum and in which the student must demonstrate mastery of the skills acquired.

Lundgren and Robertsson (2013) define the BT as a job-orientated task, which must be original and independently done, and which each student carries out under the guidance of a supervisor. A BT can, for example, be the review of the literature or a clinical case. We can also find research BTs (Tuvesson and Borglin, 2014), although these usually belong to the Masters level (Gallart et al., 2015). BTs are quite varied, although the responsibility of the student during the learning process, the independent work carried out, and the development of certain skills are all common features shared by students working on a BT (Todd et al., 2006).

Students can consider BTs an opportunity to work independently on a project or as a real nightmare that they must complete in order to graduate (Lundgren and Halvardsson, 2009). Moreover, the supervisor's roles are to direct, guide, and advise the student in a self-directed learning process (Mansell et al., 2002). Good feedback from the supervisor will improve the process and the resulting product (the BT) and can also improve the theoretical-practical integration as working professionals (Tuvesson and Borglin, 2014).

Writing a BT is a long and complex process and many actors are involved in its assessment (supervisors and thesis committee). Although there are few studies on the BT assessment, subjectivity seems frequent (Lundgren et al., 2008), and it therefore seems appropriate to develop validated tools that may help unify the assessment criteria (Kapborg and Berterö, 2002). Rubrics can facilitate a more equitable and consistent assessment, avoiding subjectivity, and may also make it easier for supervisor give a feedback and for students to understand how their thesis has been assessed (Shipman et al., 2012).

Rubrics are assessment tools that establish criteria and achievement levels by setting a rating scale (Shipman et al., 2012). Rubrics are frequently used in nursing education in order to assess clinical judgement (Shin et al., 2015), clinical laboratories (Wu et al., 2015), or the skills acquisition in clinical settings (Nicholson et al., 2013). However, no studies have been found on their applications in the BT assessment. Improved student-supervisor communication, better understanding of the learning goals, objectivity, and the standardization of the assessment process or the detection of areas for improvement are some of their advantages, although a validation and reliability process is required, and most related research lacks accuracy (Shipman et al., 2012).

#### *Bachelor's theses in the nursing degree at Universitat Jaume I*

The nursing degree at the Universitat Jaume I (UJI) (Spain) started in 2011, once the EHEA was established (Maciá Soler et al., 2013). The curriculum includes a transversal competence evidence-based practise (EBP) that is carried out in a structured manner, throughout the 4 years and ends with a BT. The BT is a final year subject with 12 ECTS (7 theoretical ECTS and 5 ECTS for clinical training).

In order to facilitate the BT process, the Nursing Department Council sets up a BT commission. Five professors compose this commission, and its functions are to organize the elaboration of BT, establish the evaluation system, and track learning outcomes. This commission prepares the "BT Organization and Development Document," and it is approved in ordinary meeting at the start of the course. The BT is a subject included in the curriculum, which results in independent and individual work that each student must carry out under the supervision of a lecturer in the field of nursing of the UJI.

At the start of the academic year (September), the students are provided with a list of supervisors and topics. To encourage students' engagement, they can choose a maximum of 5 topics of interest (Snavely and Wright, 2003). The assignment of the topics is done in descending order according to their average grades. Each supervisor can take on a maximum of 3 BT students.

Once the students, subjects, and supervisors have been assigned, the students can choose between 5 different types of BT: (i) standardized

care plan, (ii) clinical case, (iii) integrative literature review, (iv) intervention plan (which includes, among others, health education programmes and programmes to improve health care quality), and (v) research. The BT dissertation must follow specific formal criteria established by the BT commission (structure, format, and references).

The process ends with the presentation and viva before a thesis committee of three professors from the Nursing Department. Before this can happen, supervisors must authorize the presentation of the works. The BT assessment system has three rubrics, which assess the drafting process, the dissertation, and the presentation and viva of the BT. The drafting process is assessed by the supervisor (50% of the final grade). The dissertation and the presentation and viva are assessed by the thesis committee (30% and 20% of the final grade respectively). The final grade is a weighted grade.

In Spain, there is gray literature on the assessment systems for nursing BTs (Torres et al., 2012). This literature mainly focuses on the use of rubrics, although no studies have been found on their validity or psychometric properties. Thus, the main objective of this work is to develop and validate a 3-rubric system (drafting process, dissertation, and viva) for the evaluation of bachelor's theses of final year students of the nursing degree at the Universitat Jaume I (Spain).

## Methods

### *Design*

A multi-disciplinary study was carried out. First, a group of experts was created to study the content validity of a BT assessment system based on three rubrics (drafting process, dissertation, and viva). A reliability and validity study of the rubrics was then carried out on 52 theses presented during the academic year 2014–2015. The study was carried out between December 2014 and July 2015.

### *Rubrics development and content validity*

A group of experts consisting of nine nursing professors from 6 different Spanish universities, with over 5 years of teaching experience and with experience in supervising and organizing BTs or master's theses, and 2 education professors with experience in assessment methods. The experts were invited *via* personal interview, over the phone, or *via* e-mail. After their acceptance, the experts received an introductory letter (background, objectives, and methodology) and informed consent.

The research team developed by consensus the first version of the rubrics (drafting process, dissertation, and viva) after review-related literature about rubrics development (Stevens and Levi, 2005) and BT assessment (Kapborg and Berterö, 2002) (Lundgren et al., 2008) (Torres et al., 2012). The rubrics included assessment criteria and descriptors for 4 assessment levels (fail = 2.5, pass = 5, good = 7.5 and excellent = 10). First versions were sent by e-mail to the experts along with the "BT Organization and Development Document" approved by the Nursing Department Council at UJI.

The experts evaluated the suitability of criteria and descriptors for each rubric using a 5-point Likert scale. They reviewed the wording and expressed their opinion in an open space, avoiding biased opinions. These suggestions were then taken into account to create the new versions. Two rounds were necessary between December 2014 and March 2015 to reach the required consensus level. After the first round, the experts received feedback, and after the second round, they received the final version and a thank you letter. The rubrics were also sent to the students and supervisors.

### *Psychometric properties*

A descriptive cross-sectional study was carried out to study the psychometric properties of the rubrics. A total of 52 BTs, presented on the

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