Simultaneous implementation of the Bachelor, Masters and PhD degrees in nursing in the Universidad Jaume I. Castellón de la Plana, Spain

Abstract

We present an experience in Nursing Education, accredited and implemented under the Spanish University System Reform in a Public University (Jaume I, Castellón) which had no previous nursing studies. The academics offered included all three educational levels (Bachelor, Master’s and Doctorate), with an integrated theoretical-practical-clinical teaching methodology for the Bachelor Degree, competence acquisition in research in the Master’s degree, and a doctorate formed by lines of research in the field of Nursing. Studies are accredited by the National Agency for Quality Assessment, which were authorized by the Spanish Ministry of Education and implanted between 2009 and 2011.

Key words: schools, nursing; education, nursing, graduate; education, nursing, diploma programs; education, nursing, graduate; models, educational.

Implantación simultánea de los niveles Grado, Máster y Doctorado en Enfermería en la Universidad Jaume I. Castellón de la Plana, España

Resumen

Se presenta una experiencia de Educación en Enfermería acreditada e implantada al amparo de la Reforma del Sistema Universitario Español, en una Universidad pública (Jaume I, Castellón) que no tenía los estudios de Enfermería previos. La oferta académica incluye los tres niveles formativos Grado, Máster y Doctorado, con una metodología docente integrada teórico-práctico-clínica en el nivel Grado, por adquisición de competencias en investigación en nivel Máster y un Doctorado, formados por líneas de investigación del ámbito de la Enfermería. Los estudios se acreditaron por la Agencia Nacional de Evaluación de la Calidad, los cuales fueron autorizados por el Ministerio de Educación Español y se implantaron entre los años 2009 y 2011.
**Introduction**

The Spanish University System Reform, launched in 2003, resulted from the agreements between European universities that began at the Sorbonne on May 25th, 1998, continued with the Bolonia Declaration1, signed on June 19th, 1999 by ministers from 29 European countries with expertise in higher education, that gave its name to the Bologna Process and continues today with biannual meetings between ministerial responsibility. Ministerial Summits were held in Bologna 1999, Prague 2001, Berlin 2003, Bergen 2005, London 2007, Leuven / Louvain-La New in 2009.1-6

It is an intergovernmental process with participation of universities, students, the European Commission and other organizations. This process had as its goal the establishment of a European Higher Education Area (EHEA) in the year of 2010.

The EHEA is not intended to harmonize higher education systems, but to increase their compatibility and comparability, respecting their diversity. The EHEA is based on agreements and commitments on the objectives to be achieved.

In addition, the EHEA is seen as an open space in which there are no barriers to the mobility of students, graduates, professors and administrative staff, and is built around the recognition of degrees and other higher education qualifications, transparency (a system of readable and comparable degrees organized in three cycles) and European cooperation in quality assurance.7 In Spain, the process is regulated and implemented with the following rules: (1) Establishment of a comparable credit system, the European Credit Transfer System-ECTS-(Royal Decree 1125/2003)8 (2) Diploma Supplement (Royal Decree 1044/2003)9 (3) Standards and Guidelines for Quality Assurance in the EHEA10 (4) Qualifications Framework for the EHEA (2007 report)11 and qualifications structure: regulation of official university undergraduate and postgraduate (Royal Decree 55/200512 and 56/2005,13 RD
1393/2007)\(^1\) and its subsequent amendment (RD 861/2010\(^2\) and RD 99/2011).\(^3\)

The Universidad Jaume I was created in 1992 and until 2009 provided degrees in three areas: Humanities, Legal Social Sciences, and Science and Technology. Beginning in 2009, it expanded its academic offering to the field of Health Sciences, creating a Faculty with 3 degrees: Nursing and Medicine, both newly created, and Psychology, from the scope of the Humanities. Consequently, nursing was born as a project with the three academic levels: bachelor, master’s and doctorate program, which are credited and began being taught in 2009.

It is an educational offering that reflects the philosophy of the Spanish University System Reform and the EHEA that has the following features depending on the degree level: (a) Bachelor: grants competence to practice according to the EU community directives of the nursing profession responsible for general care in the EU environment. It comprises a total of 240 ECTS with a duration of four years; (b) Master’s. Deepens the acquisition of research skills to develop projects and access to the doctorate. Competencies in research, clinical and community areas that are useful to apply the best scientific evidence available in daily practice. The master’s degree comprises 120 ECTS with a duration of two years and is called Master of Science in Nursing, and (c) Doctorate: has a wide range of research areas in the field of nursing for which doctorally prepared nurses are responsible in order to guide the development and defense of doctoral theses, later trying to cover all areas of the discipline of nursing. Initially, the program was credited under the name Health Sciences and currently under the RD 99/2011, has been credited as the Doctor of Nursing Science.

Since the project beginning, the philosophy of the studies is presented as an educational program inspired by models of quality management: teachers and students satisfied with the teaching-learning process and the objectives of providing quality care that, in turn, may have an impact on health care and, ultimately, contribute to improved professional development and increased user satisfaction.

**Main characteristics of each level of education**

**Degree**

**Legislative framework.** The graduate degree in nursing from the Universidad Jaume I, provides the skills needed to practice as a nurse responsible for general care in the European Union’s environment.\(^4\) Community legislative support of the degree is recorded in the RD 1837/2008,\(^5\) of November the 8th, by entering the Spanish law Directive 2005/36/CE, of the European Parliament and of the Council of September the 7th, 2005, and Directive 2006/100/CE, Council of November 20th, 2006 on the recognition of professional qualifications.\(^6\) Spanish legislation considers nursing as a profession regulated by the Law 4/2003 on the Regulation of Health Professions (LRHP).\(^7\) Learning competency contained in this legislation involves an educational methodology and specific faculty profile which are detailed in the following sections.

**Study Plan.** Each academic course consists of 60 ECTS.

**The first course** includes 36 ECTS, composed of the subjects: Anatomy, Biochemistry with contents of Physiology I/ Biochemistry, Physiology with content about the function of the various organ systems of the human organism that is complementary to Physiology I, Psychology, Statistics and Biology, all of them subjects from the Health Sciences branch. These subjects would complete the knowledge of human beings from a biopsychosocial approach. The remaining 12 ECTS subjects belong to Human Nutrition and Basic Pharmacology with content about drug delivery. Nutrition is an axis of health and knowledge of its adaptation to disease states necessary for the evolution of any disease, basic pharmacology will focus on medication administration; on the other hand, for completing
the subject, a practical simulation period occurs to ensure knowledge of the various routes of drug administration. The remaining 12 to 60 ECTS basic of the first course, are completed with of the branch of knowledge, Arts and Humanities: Ethics and Modern Language (English) applied to the Health Sciences.

The second course transitions from health to disease, beginning with the acquisition of knowledge, skills and abilities needed by nurses responsible for general care as health workers. From this moment, it delves into the subject, Fundamentals of Nursing, divided between learning the doctrinal corpus of nursing, its history and evolution and part of the subject centered in basic care, namely, self-care deficiencies a person presents in certain situations that the nurse must supply and, if possible, return of autonomy. The course ends with the introduction to disease processes, focused from the concept of general care process at all stages of life.

The third course focuses on the knowledge of healthcare processes affecting specific population groups, children, women of childbearing age, the elderly, and people with mental health problems. The methodology for acquiring skills remains integrated and from this course on, the contents become more complex in all areas. The path from health to disease and from simplicity to complexity aims to consolidate learning consistent with the maturity of the university student in their final years.

The fourth course is the first semester of acquiring knowledge, skills and abilities that enable students to deal with complex situations with critical and terminal patients, assisting situations at the end of life.

The progressive acquisition of knowledge will allow students to write, during the second semester, a final project work which will show the “knowing how to be” a nurse. By including five clinical ECTS in the development of final project, students select the space in which they want to deepen knowledge, eventually completing the training with two possible itineraries of complementary clinical fields, addressing real situations such as multiculturalism, health equity, the gender component, environmental health or dependency. Also, all the subjects from second to forth semester show the progressive acquisition of cross competence: ability to enforce clinical judgments to ensure that they meet standards of quality and that the practice is based on evidence, with the aim that the degree students gradually acquire knowledge and certain skills on basic aspects of research methodology, literature reading, and promoting the need to link research findings to nursing practice.

Educational Methodology. The educational method used integrates theory, simulated practice and clinical practice so that the training sequence allows the acquisition of knowledge during expository theoretical classes, acquiring laboratory skills and simulation facilities and, finally, practical demonstration of what was learned is evaluated in clinical areas. At no time is theory separated from clinical practicum, avoiding the break in the continuum of learning. The integrated methodology guarantees 50% of the required clinical practice in the degree, in health centers, hospitals and other healthcare since second grade.

Faculty profile. Overall, the faculty profile corresponds with teachers in the field of clinical and community nursing and high academic level (Master’s or Doctorates in Nursing). Subjects in first grade related to the branch of knowledge are exceptions, which although complementary, are far from the traditional training of Nursing. Each course has a total of eight teachers, four of which are full-time teachers and four of whom have a part-time position. The acquisition of skills during the clinical period is done in coordination between faculty and clinical nurses involved in assessing competence. These are the reference nurses that have been incorporated to the named Reference Nursing Program at the Universidad Jaume I. Said program is based on the joint assessment of learning among university faculty and clinical nurses who have previously been educated and
have acquired the commitment of direct supervision with the students from their jobs. The program has a detailed structural support in monitoring and evaluation guidelines that have developed by clinical nurses and teachers jointly allowing the acquisition of skills assessment from the guidelines in accordance with the learning outcomes.

The reference nursing program includes the progressive incorporation of clinical nurses to the formal education of students from their jobs. It is the clinical nurses from health centers covered by the Cooperation Agreement with the Universidad Jaume I, who meet these three requirements: stable employment of at least one year in the same position, have made training or research actions annually, and attend the free training program which the University provides. Enrollment in the program is voluntary and is coordinated with the Departments of Nursing at the involved centers. During the first year of implementation, this program recruited 200 nurses in a setting of three health departments, with three hospitals and 23 primary care centers. The program is an ongoing action of communication- training promoted by the University and reinforced by the health officials in the Departments of Health. It is inspired by developing the capacity of competence evaluation that clinical nurses have that, from their jobs; assume the commitment of clinical assessment.

The guidelines on which the process supports itself are available and freely accessible. The Study Plan coordination takes place through the responsibilities of the Degree along with the course coordinators. Exchange programs, scholarships, etc., are done from the structures of the University. Related information for students on the Degree is available and is freely accessible.

Master in the Science of Nursing

Legislative framework. This program is authorized under the law of 2007, which has its origin in a University-Specific degree (lessons offered and certified by the Spanish universities with the ultimate goal of meeting those training needs that are not reflected in the official catalog of university qualifications. Its approach is very practical and adapted to the demand for specialized training in various professional sectors), which was implemented in the Universidad de Alicante in 1998 as a strategy for scientific development of Spanish Nursing. As a University-Specific degree it was taught in eight Spanish universities and upon official recognition as a Master’s, it continued with some courses at the Universities of Alicante, Huelva, Almería Tarragona, Internacional de Cataluña, Lleida and Zaragoza. Finally it has been implemented at the Universidad Jaume I of Castellón, which is much more profiled towards research than the source program.

Study Plan. The program provides skills that are not related to the regulated profession, with a focus on research and training in three areas: making decisions about groups of healthy or sick people, training to function in academic environments, management and research in nursing, and advanced clinical.

Its implementation responds to the need to prepare nurses responsible for general care with knowledge and skills to research in the field of self-knowledge, deepen teaching and managerial functions and make decisions related to advanced clinical patient groups dependent on nursing care for treatment and prognosis, particularly chronic and palliative treatments where the role of the nurse in charge of patient care and environment acquires significant importance.

The specific objectives and competences of the degree are grouped to enable students to: (1) discuss the historical, theoretical and philosophical bases of Nursing Science; design and implement planning, performance and evaluation in the field of nursing care, considering different health claims according to problems, age and social context; (2) apply the methods and techniques necessary for the exercise of teaching undergraduates and graduates; (3) manage resources at the disposal of any enterprise of social care and at any level of the organizational chart, and (4) promote the development of research projects directed to
the professional exercise, to serve as a starting point for the realization of the thesis. General competencies of the degree are grouped by profiles, except for research competencies, which are common in advanced clinical skills, teaching and management. The study plan ends with the defense of the Master’s thesis, which consists in carrying out a research study which must have obtained results. The guideline for the Final Project for the Master’s degree is available and freely accessible.20

The Master of Science in Nursing is designed as a blended learning. The presentality (20% of each credit) guarantees to students, through a broadcast of the classes on the Internet from the University classroom to any network point. The contents are delivered in person and online through the Virtual Classroom tool. The mainstreaming of the degree includes managing computer systems for advanced user levels by the characteristics of blended learning technique of the degree, that require the use of the university's own intranet and knowledge and bibliographic management application. Bioethics and English are university-specific subjects, considered to be cross training due to their importance in decision making and research in health sciences.

The skills acquired in the program are summarized in the following statements:

- That the students can apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.

- Students should be able to integrate knowledge and handle complexity, and formulate judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of knowledge and judgments.

- That students can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences in a clear and unambiguous manner.

- That students have learning skills that will enable them to continue studying in a way that will be largely self-directed or autonomous.

**Study Plan.** The Master’s consists of 120 ECTS, all of them grouped in compulsory subjects with a time sequence, and are distributed as follows:

**Advanced Clinical Nursing Area.** The advanced clinical nursing research consists of two mandatory subjects: “Nursing Theories and Models”, which has continuity with “Chronic diseases, geriatrics and palliative care”, from which students learn to make decisions related to the field of study belonging to nursing. Competencies similar to those in the Nurse Practitioner programs are acquired, a nurse image developed in English-speaking countries from which the role of the Master in Nursing has competencies related to decision making in certain health problems. In this formative area, “Bioethics” is included.

**Clinical Management Area.** Research orientation is guaranteed, with complementary training that provides the subjects “Health Economics” and “Management of health and social health”, taken sequentially during the first course.

**Education Area.** The training content for teaching has two branches, general pedagogical and specific education on health matters contemplated in the “educational methods” subject. The research training related to Health Sciences constitutes the profile of the Master’s degree and its main training nucleus. Learning begins with the study of “Overview of Research Methods in Health Sciences”, and finishes with the first level of “English”. During the second half of the first course, content related to “qualitative research” and “scientific documentation” can be accessed in an instrumental way to complete it, with the knowledge of the tools necessary to perform “critical reading of scientific publications” that allows the use of the best available evidence, along with the subject “evidence-based clinical practice.”
The second course begins with training on “Quantitative Techniques in Health Sciences and Population Health” with an advanced level of “scientific documentation” and “critical reading” completing the first half with the start of the annual course “master’s thesis” (8 ECTS). In the second half, a higher level of English language adapted for scientific texts is given, and completes the “master’s thesis” subject (12 ECTS). The program is available and is freely accessible.23

Educational Methodology. Once admitted to the program, students receive a training guide for each subject which explains the sequence of learning objectives, competencies, content, assessment criteria, and teachers responsible, schedule of online and / or in person tutorials, and the number of ECTS. Each ECTS is 25 hours of overall work for the students to achieve the learning objectives and to acquire the skills. Twenty percent of each ECTS is theoretical teaching, practical and continuous assessment, with the remaining 80% including working with a tutor and the independent work of students.

The subjects have a continuous sequence so that they start with theoretical presentations by the teacher in the classroom/broadcasted. Subsequently, a working space is left for the student with no classes with the aid of a virtual classroom and, finally, the evaluation of content and skills is done using two methods: a practical exercise, and a test or examination of short questions to assess knowledge.

Faculty profile. 95% of the teachers have a doctoral degree. 50% of the teachers are members of the Universidad Jaume I and the other 50% are prestigious teachers chosen depending on the subject. Students are graduates or have a diploma in nursing, and are admitted based on the average of their transcript and resume. Once admitted, a mentor / guide is assigned, who guides the process of enrollment and lesson planning. Subsequently, each student will have a tutor for her Master’s Thesis, who is not consistent with the mentor / guide, but related to their research project.

Doctorate

Legislative framework. As mentioned before, the source program was a Doctorate in Health Sciences accredited under Royal Decree 1393/2007,14 the current Doctorate in Nursing Science has its legal framework in Royal Decree 99/2011.16 In the Doctorate in Nursing Science from the Universidad Jaume I, renowned researchers of the Hospital Clinic of Barcelona, Universities of Lleida, Barcelona, Murcia, Tecnocampus Mataró (Universidad Pompeu Fabra), Autonoma de Madrid, Zaragoza, Almeria, Alicante and Huelva participate. Likewise, researchers from institutions such as the Virtual Library of the Public Health System of Andalusia and the Critical Reading Group CASPe give support to the program. It is a program with research lines related to Chronic Diseases, History and Health management.

Program Characteristics. Its access is subject to research training to ensure the initiation, development and subsequent defense of a doctoral thesis from lines of research in the field of nursing. Each student is assigned a mentor to guide the presentation of the design of the doctoral thesis. From this moment, one or two thesis supervisors are assigned and in a maximum of three years, the doctoral thesis must be defended, either by publications or from a single research paper.

Doctoral studies ensure the doctoral student, at a minimum, has acquired the following core competencies, as well as those which appear in the Spanish Qualifications Framework for Higher Education: (a) systematic understanding of a field of study and mastery of the skills and methods of research associated with that field; (b) ability to conceive, design or create, implement and adapt a substantial process of research or creation; (c) ability to contribute to the expansion of the frontiers of knowledge through original research; (d) ability to perform a critical analysis, evaluation and synthesis of new and complex ideas; (e) ability to communicate with the academic and scientific community and society in general about their areas of expertise in the ways and languages commonly used in the international
scientific community; and, (f) ability to promote in academic and professional contexts, the scientific, technological, social, artistic or cultural in a knowledge-based society.

Doctoral lines are: attention to sexual and reproductive health in Spain; pre-hospital care and care for people in critical condition; self-care and health; the measure of self-care; specific self-care integrated model; nursing care and family care; care in situations of chronic disease, promotion and health education; community and public health nursing; scientific documentation; education and nursing; ENFINNOVA, innovation in care in aging and dependence; genetics and cancer; clinical management; history of health sciences; health outcomes research (HOR); chronic disease management; cardiovascular diseases; diabetes; obesity; mindfulness and communication in the helping relationship; nurse thought and oral history, and clinical practice based on evidence. The lines, entry requirements and admissions criteria are available in open access.

Experience analysis

In 2009 the Bachelor, Master’s and Doctorate for nursing programs were elaborated and accredited by the Spanish National Agency for Quality Assessment, and their implementation was authorized by the Spanish Ministry of Education. However, the Master’s and Doctoral programs were activated in the classroom during the academic year 2010/2011, as the Bachelor degree needed an authorization of the Autonomous Community, which came after the academic year began. In 2011, graduate studies began, completing the three academic levels. The number of students enrolled were 60, 25 and 21 in the Bachelor, Master’s and Doctoral degrees, respectively.

The hired teaching staff responds to the expected profile and the Master’s is in high demand and financial sufficiency. The coordination of the three programs and of the nursing department is done by nurses with a doctoral degree. The parity of the responsibilities with the other degrees in the field of Health Sciences at the Universidad Jaume I (Medicine and Psychology), places nursing in a competitive situation in the scientific field of Health Sciences, constituting a good point basis for the development of nursing science.

Current legislation allows sorting skills acquisition, recommended in Spain in a consistent a manner with the training needs of nurses. However, the interests and influences of other disciplines that have not been disconnected from the training of nurses for the past 30 years coupled with the fear of change that any group experiences when faced with a possible individual loss of power, encourage curriculum structure where skills acquisition is separated between those acquired in theory and those acquired in practice, which in our opinion impoverishes training, maintaining a dichotomy that does little for the development of a profession and of a science.

The training program at the Universidad Jaume I presents an integrated approach which is not new. This is the method used by different Spanish Universities for years. In fact, it is inspired by the curriculum that the Universidad de Alicante (Spain) had until 2010 and that placed studies in the top positions of quality in Spanish universities. The integration requires a coordinated effort Health-Education which is not always easy. The teachers must have a nursing profile and this is not always easy in university.

The two-year master’s studies are unpopular in Spain, since the legislation allows access to a doctoral program with 60 Master ECTS, so that two-year programs and robust research training have a difficulty that the rest lack. However, the requirement of the doctorate is high and it seems that, if we want to set scientific nursing in its rightful place, before starting the development of a doctoral thesis and taking into account the skills of the degree it seems reasonable that the intermediate formation, meaning the master’s program, be consistent.

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