



A UPC innovation teaching project for the incorporation of the gender perspective in nautical, marine and naval engineering

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ABSTRACT

There has been a rising awareness in recent years of the gender inequalities within STEM-related programmes and the need to overcome them and so bridge the gender gap in these academic disciplines. Different initiatives have arisen, among which there are gender equality policies, regulations and programmes. In line with this, the Catalan University Quality Assurance Agency (AQU) promoted a regulation for the incorporation of the gender perspective in all the bachelor's and master's degrees in tertiary education in Catalonia by 2021. To comply with this regulation and also to promote a culture of equity and equality of opportunities for women, the Universitat Politècnica de Catalunya (UPC) fostered different projects within its community. One of these projects has been developed by the Gender Equality Commission at Barcelona School of Nautical Studies and consists in the development of a web platform with resources for lecturers to incorporate this new transversal competence of gender perspective in the nautical, marine and naval engineering study plans. The main objective of this teaching innovation project is to aid teachers with the incorporation of this competence not only by providing online tools and resources but also gender-focused teacher training to allow them to design tailor-made activities and strategies. Some tests were also administered to assess the effectiveness of the implementation of these newly-designed gender equality teaching practices and some sample study plans and activities were developed to serve as a model and example of good practices for the incorporation of gender mainstreaming in the disciplines of nautical, marine and naval engineering.

1 INTRODUCTION

1.1 Framework

In order to promote gender mainstreaming in all Catalan Universities, the Catalan University Quality Assurance Agency (AQU) published in 2018 the General Framework for the incorporation of the gender perspective in university teaching [1], following the Resolution 693 / XII of the Official Gazette of the Parliament of Catalonia (BOPC number 505, of 9 January 2020) [2] on the recognition and guarantee of women's rights. To foster a culture of equity and equality of opportunities for women at the Universitat Politècnica de Catalunya (UPC), and also to comply with these recommendations, the Governing Council of the UPC, which establishes the University's strategic and programmatic lines, approved on 1 April 2020 the incorporation of the new transversal competence on gender perspective (Agreement CG / 2020/02/13) [3]. According to point 2 of this UPC Governing Council Agreement, "All bachelor's and master's degrees taught at the UPC must gradually incorporate the new competence on gender perspective."

The Commission for Gender Equality of the Barcelona School of Nautical Studies was created to promote actions and address issues aimed at ensuring and achieving gender equality within the school community. In accordance with this, and in order to assume the mandate of the Governing Council of the UPC for the incorporation of the

new competence of gender perspective in teaching, the commission, constituted as a work group, presented the proposal for an innovation teaching project for the development of a web platform with resources for the incorporation of the gender perspective in the Nautical, Marine and Naval engineering bachelor and master's degrees. This proposal was approved in July 2021 and developed during the academic year 2021-2022.

1.2 Objectives

The incorporation of gender mainstreaming in education improves the quality of instruction and the social relevance of the contents taught while avoiding partial and androcentric interpretations of society and knowledge. Gender-sensitive teaching also encourages students' critical thinking capacity and provides them with tools to identify gender bias, stereotypes and roles. All this gender awareness is essential to cater for diverse roles and needs and to avoid gender blindness not only in university teaching but also in students' future careers, which may aid with the transformation of present unequal gender relations [4]. This is one of the reasons why gender mainstreaming in education is promoted by national and international institutions and organisations, as a strategy towards combating discrimination and realising gender equality.

In keeping with this, the main goal of the innovation project presented here was to provide resources to teachers for the progressive incorporation of the gender perspective in the curricula of all the studies of the Barcelona School of Nautical Studies. This main goal fostered different types of actions to encourage teaching staff participation in addressing gender equality issues in teaching, such as specific teacher training to empower them with respect to the implementation of this new gender perspective. The final aim was to provide training and resources on gender-sensitive pedagogies and innovative teaching methodologies that reduce inequalities, biases and stereotypes. This way we may also address the current gender gap in nautical, marine and naval engineering studies, which the 2021-2022 academic year only recorded 16.9% of female students enrolled according to the Planification, Evaluation and Quality Office (GPAC¹) data.

2 METHODOLOGY

According to AQU [1], "when applied to teaching, the gender perspective implies a process of reflection which affects the design of the competences and skills in the programme's curriculum, the design of courses, including learning outcomes, the content taught, examples provided, the language used, the sources selected, the method of assessment and the way in which the learning environment is managed. To ensure the successful mainstreaming of the gender perspective, teaching staff need to acquire this skill through the training provided by universities' teaching innovation

¹ GPAC: Gabinet de Planificació, Avaluació i Qualitat



units and the specific courses organised by gender equality units and observatories.” In consonance with this, the innovation project attempted to aid teachers to assess gender inequality, transform their curricula, develop sex- and gender-sensitive content, include more gender-balanced references, foster a more inclusive learning environment and apply gender-sensitive teaching methods and assessment.

2.1 Project areas

In order to design solutions that could help teachers assess inequality and develop the necessary abilities to transform their curricula, course contents and teaching methods, along the lines of the definition above, the innovation project provided different types of resources and training, which were organised around the five main areas described below:

AREA 1. Development of gender-sensitive curricula

This area contemplates the development of gender-sensitive curricula incorporating the gender perspective at different levels, namely, in terms of inclusive vocabulary, gender-sensitive goals and content, gender-balanced references and inclusive evaluation activities. Teaching content should be inclusive, avoid gender bias and stereotypes, and incorporate female references as role models for students. On the other hand, including women in the bibliographic references with their full name would also help to give female researchers more visibility. Finally, it has been demonstrated that the different types of exam questions and teacher’s performance may also affect students’ answers according to gender, which should also be taken into consideration.

AREA 2. Guide of resources and good teaching practices to promote gender equality

The guide of resources and good teaching practices should be used as a tool to promote the incorporation of the gender perspective in teaching not only in terms of content and assessment but also in terms of teaching methodology and classroom management. The teaching methodology should take into account the different learning styles and allow students to reflect on social issues relative to gender equality. Classroom management should consider assigning roles in classroom interaction so as not to fall into gender biases, offer a balanced participation, and a variety of experiences that address diverse gender needs.

AREA 3. Teacher training on gender and feminist pedagogies

The two areas above in isolation would not prove effective if they do not go hand in hand with some gender-specific teacher training. Therefore, to help and empower teachers with tools to effectively incorporate the gender perspective in their teaching, training courses and seminars were held to cover and address all the issues described in areas 1 and 2.

AREA 4. Development of diagnostic tools

In order to assess teacher performance and the general sensitivity of the different community groups towards gender equality, different diagnostic tools were developed



and incorporated in the platform to diagnose the degree of gender-sensitivity of the school and management, teaching materials, teaching and administrative staff and students. These tools, generally with a survey or checklist format, were designed to assess the extent to which gender mainstreaming is supported and promoted by the school, the community and the curricula with the aim to provide suggestions and encourage community members to progress in this journey.

AREA 5. Dissemination of the project

The work carried out during the project has been disseminated both internally, within the university, and externally, in conferences and journals, with other practitioners within and outside the discipline so as to share some insights on issues relative to the incorporation of the gender perspective in university teaching.

2.2 Teacher training

As it is essential to train students to work on projects, assignments, bachelor's or master's degree projects with a gender perspective, it becomes equally essential to train teaching staff to help them in this endeavour. Departing from the premise that all courses can mainstream gender, teachers need to be provided with the necessary tools and knowledge to incorporate the gender perspective effectively in their teaching. In order to acquire this required knowledge, practitioners should be encouraged to participate in training courses so that they can identify aspects that can be improved or reinforced and so transform their curricula and develop gender-sensitive teaching methodologies and materials accordingly.

The teacher training course on gender mainstreaming was based on the framework of feminist theory and, more specifically, feminist pedagogy, which according to Crabtree, Sapp and Licona (2009 p.4), can be defined as follows: "Feminist pedagogy is a set of assumptions about knowledge and knowing, approaches to content across the disciplines, teaching objectives and strategies, classroom practices, and instructional relationships that are grounded in critical pedagogical and feminist theory. It is an ideology of teaching inasmuch as it is a framework for developing particular strategies and methods of teaching in the service of particular objectives for learning outcomes and social change." [5] Thus, the incorporation of feminist pedagogy in teaching is more a way or rethinking teaching and learning than a methodological perspective [6]. In an attempt to simplify and choose some fundamentals of feminist pedagogy applicable to our teaching context, which undoubtedly falls into an oversimplification, the following were selected to be implemented in the development of the course activities:

- reorganising the relationship between students and teachers to break with the traditional hierarchy in the classroom and question the traditional structural assignment of the principle of authority from a critical perspective.
- creating a shared and collaborative learning environment where students' experiences and knowledge are valued, thus empowering students based on the recognition of their knowledge.



- respecting different identities, rhythms and learning processes.
- developing pedagogical proposals that gather this diversity of knowledge and break with the idea of single, absolute and reductionist thinking.
- transforming learning to allow students *and* teachers not only acquire new knowledge but to shift their thinking in new directions so that their personal interpretations of experience and knowledge can be re-read in new, critical ways.
- creating a safe space in the classroom that tries to overcome prejudices, stereotypes and discrimination, thus enhancing the sense of community.

In keeping with this philosophy, the innovation project described here incorporated some gender-specific training for the teachers of Barcelona School of Nautical Studies. Fifteen teachers participated in a specially-designed course to learn about gender-sensitive pedagogies and innovative teaching methodologies to transform their curricula. The course consisted of three theoretical sessions followed by some individual guided work and two final sessions to discuss with the whole group the activities developed. The feedback received in these final sessions served to refine the activities and a final version of the valuable materials produced was included in a repository on the project platform to be used as a guide and example for other teachers.

3 PROJECT OUTCOMES

3.1 Web Platform

The main outcome of the project was the development of a web platform with resources for the incorporation of gender mainstreaming in the discipline of nautical, marine and naval engineering, encompassing the five project areas described in section 2.1. This platform constitutes a flexible tool to generate a comprehensive and dynamic virtual learning environment, which allows interaction between users to share experiences and knowledge. This platform, which is linked to the Barcelona School of Nautical Studies website, has three major sections, as illustrated in Figure 1:

- Section 1. Gender equality observatory
- Section 2. General resources on gender equality
- Section 3. Resources for the incorporation of gender mainstreaming in teaching and research

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Fig. 1. Web platform homepage

All the resources provided in the different sections are specifically addressed to students, teaching and administrative staff of the discipline of nautical, marine and naval engineering. Below is a description of the resources available in each section:

Section 1. Gender equality observatory

This section includes gender-disaggregated data and statistics to allow the community learn about the reality of the maritime sector and studies. In addition, different diagnostic tools have been incorporated to determine the extent to which gender mainstreaming is supported and promoted by the school and its programmes, and the teaching staff. Also, the degree of gender-sensitivity of the different groups of the community is gathered and analysed with the aim to detect gaps, deviations and difficulties and so identify the aspects that can be improved or reinforced.



Section 2. General resources on gender equality

The resources in this section are divided into two main groups. The first group includes some basic gender literacy to learn about the different key concepts associated with gender and guides on the use of a gender inclusive language. The second group contains resources on gender equality for the maritime community such as programs, organisations and associations involved in promoting equality in the sector.

Section 3. Resources for the incorporation of gender mainstreaming in teaching and research

This third section includes resources for the incorporation of gender mainstreaming in university education and research with a special emphasis on the maritime field. The resources in this section are mainly addressed to teachers and researchers and consist of relevant bibliography, guides and specific practical resources for classroom use. A valuable collection of resources in this section is the repository of gender-sensitive syllabus proposals generated in the teacher training course as explained in section 3.2. below.

3.2 Repository of gender-sensitive curricula

The gender-specific teacher training course offered to the teachers of Barcelona School of Nautical Studies served not only to empower teachers with the necessary tools to effectively incorporate the gender perspective in their teaching, but also to generate a repository of gender-sensitive curricula to be used as guide of good teaching practices by other teachers. The activities developed involved transforming the existing course syllabuses with respect to objectives, content, assessment, methodology and references. To develop the activity teachers could focus on one or several of these aspects depending on their needs and interests. The result was a collection of syllabus proposals with an enhanced gender mainstreaming approach. This was an important output of the project in itself as it allowed teachers to reflect on different questions relative to gender pedagogies, confront the challenge of resisting a single, dominant, institutionalised narrative and look for and find ways to transform their teaching and study plans. The proposals stemming from the course were incorporated in section 3 of the platform.

4 SUMMARY

This innovation teaching project constitutes a step forward towards the incorporation of gender mainstreaming in the disciplines of nautical, marine and naval engineering. The resources and tools incorporated in the web platform developed may serve to enhance curricular design and content, learning outcomes, teaching and assessment methods and consider student diversity. At the same time, these resources may prove useful to detect and avoid gender blindness, bias and stereotypes in teaching and so avoid the production of future professional outputs and projects based on androcentric patterns. Finally, the participation of teaching staff in the project has been key to



empower them with the tools and knowledge to incorporate the gender perspective effectively in their teaching while becoming a valuable asset to develop gender-sensitive materials.

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