INTEGRATIVE TEACHING STRATEGIES FOR THE DEVELOPMENT OF COMPETENCIES THAT ALLOW HEALTH PROFESSIONALS TO FORM PART OF MULTIDISCIPLINARY TEAMS IN THE CARE OF CHRONIC PATIENTS

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Abstract

In the field of health, there are complex challenges that require a change in the health model based on the coordination and specialization of professionals. The approach to the needs of the patient requires a multidisciplinary team. However, for this team to be effective, it must be integrated by professionals who understand their own role while understanding and valuing the role of other professionals. With the present project we wanted to teach future professionals that knowing the work of other health professionals guarantees the effectiveness of the team, allows to establish synergies and improve the individual performance of each member. This vision acquires special relevance in the treatment of the chronic patient where therapeutic coordination is decisive to guarantee optimal health care.

Thus, taking as a backbone the patient with multiple sclerosis (MS) through the Service Learning methodology, different activities were carried out to train students as members of the health team. The project involved 11 teachers and 312 students of the degrees of the Faculty of Health Sciences of the San Jorge University (Pharmacy, Nursing, Physical Activity and Sports Science and Physiotherapy).

The project was developed in two phases. In the first, activities based on the horizontal and vertical curricular integration were carried out so that the student understood his own professional role in the treatment of the patient with MS. In the second, a workshop was held in which all students were part of multidisciplinary health teams for the resolution of a clinical case and the design of a comprehensive health plan for the patient. In order to determine the impact on teachers and students, various tools were used: rubrics, surveys, questionnaires, focus group.

Among the results obtained, it is worth noting that the students valued in a very positive way the activities carried out, especially the workshop. Thus 95.8% considered that the activity will improve their future professional practice and 91.3% that allowed them to develop fundamental skills for their training. In addition, 100% of the students surveyed affirm that the activity has allowed to know and respect the work of other professionals of the health team. Finally, it is worth highlighting the direct impact on the project society since all the technical material generated was made available to FADEMA.

Keywords: Service learning, integrative methodology, Science education, Health education.

1 INTRODUCTION

University teaching must offer sound academic education which coherently addresses social changes and market demands. This vision is particularly important in an increasingly global context and current socio-economic situation (Gómez Rincón, 2015). Therefore, universities aim at training excellent professionals prepared to practice in diverse environments. In the field of health care, professionals face new and complex challenges such as growing costs of healthcare, limited financial resources, increased life expectancy and the burden of disease. In order to support patient health, this new scenario requires changes in the health care model based on the specialization and coordination between various professionals (Gómez Rincón et al., 2016). It is evident that patient needs cannot be met by a single professional and require multidisciplinary teamwork in which each member can contribute a different perspective based on their knowledge, attitudes and skills. The World Health Organization (WHO) defines a health team as a non-hierarchical association of people from different professional disciplines with a common goal: to provide patients with the most comprehensive care possible (WHO, 1999). This
conception obliges us to establish a division of tasks based on the specific competences of each of the professionals involved. Only through coordinated work can quality health care be offered. This fact necessarily implies a distribution of roles that must go beyond the mere distribution of tasks from a hierarchical scale. Although professional health profiles are relatively well defined and their professional competences are clear, there are common and overlapping training areas which may lead to conflicts. This circumstance possibly has its origin in the fact that training programs traditionally focused on the acquisition of specific skills to the detriment of transversal ones, especially those considered interpersonal. The "Tunning" project (González and Wagenaar, 2003) classifies 30 transversal competences into instrumental, interpersonal and systemic. It is striking, however, that at least 2 of them, though fundamental for a professional that is part of the health team, can only be adequately addressed through activities entailing interaction between students of different degree programmes. These skills include the ability to work in an interdisciplinary team and the ability to communicate with experts from other areas.

Over the last 15 years, Spanish universities have made considerable efforts to integrate transversal skills across the curriculum. Some of such training programmes feature certain degrees of integration, especially horizontal (between subjects of the same year) and to a lesser extent vertical (between subjects of different years). However, most of the curricula are based on subjects represented in the first five steps of the Harden ladder (Harden, 2000) whereas the curricular integration usually does not go beyond the temporary coordination of contents so that related topics are programmed to be addressed at the same time. That means that students study the concepts related to different subjects separately and then are supposed to establish relationships between them (Escanero Marcén, 2007) trying to make these relationships significant and transferable. The following three steps of the ladder constitute three stages of increasing curricular integration, the so-called curricula, based on subjects with integrated activities. These activities must be agreed among teachers and recognized in terms of time, resources and evaluation. Finally, the so-called integrated curricula are the result of a process of "globalization" of the subjects. This implies a progressive loss of the disciplinary perspective in favour of an integration of the different disciplinary perspectives. The first level in this process would be a multidisciplinary approach in which a content or problem is addressed from a range of perspectives. At this level of integration, the disciplines contribute to the learning objectives while maintaining their identity. The next level represents the complete interdisciplinary integration and loss of disciplinary perspectives. According to Jarvis (1990), in this process a problem is addressed by using numerous disciplines simultaneously. The Harden model represents the highest level of integration as transdisciplinary integration. In this model, the subjects are an unrecognizable part of a real global learning experience. At this level, the concepts of subject or discipline disappear and the students focus on a new level of learning which resembles learning processes in the real world. Educational or training activities that involve students of different degree programmes are relatively frequent in the recent bibliography (Sanchís et al., 2012, Gómez Esquer and Rivas Martínez, 2009). However, there is little documentation on teaching innovation activities with students of more than two degree programmes. One example can be the work carried out at the San Jorge University by Fuentes Broto and collaborators (2014) in which students of the degrees in Pharmacy, Nursing and Physiotherapy participated in the First Congress of Students of Physiology organized by the lecturers of this subject to foster intercurricular interaction.

An effective health team should be composed of professionals who understand their own roles and at the same time know, understand and respect the roles of other professionals. Knowing and respecting the work of others guarantees the effectiveness of the team as it allows synergies which significantly improve the individual performance of each member. This vision is particularly relevant in the treatment of chronic patients in which the coordination between diverse health professionals is decisive to ensure better healthcare outcomes.

Multiple sclerosis (MS) is a demyelinating, chronic, autoimmune and inflammatory disease that affects the entire central nervous system. It affects approximately 2 million people in the world and 46,000 people in Spain. The development of this disease of unknown origin has been associated with multiple factors: environmental, genetic, infectious, endocrine, psychological and immune. Despite its varied etiological factors, the pathophysiology of the disease consists of 3 fundamental aspects: perivenous inflammation, demyelination and gliosis (Porras-Betancourt et al., 2007). Although MS is a serious disease, there are several effective treatments focused on preventing disability, reducing the frequency, severity and duration of relapses, improving symptoms and restoring functionality. Because of its chronic nature, MS patients present multiple therapeutic needs that must be addressed
from an integrated perspective by a multidisciplinary health team. Therefore, a holistic approach to pathology is necessary. In this context, the coordinated work of physicians, pharmacists, nurses, physiotherapists, experts in physical activity and other health professionals is fundamental. Therefore, thanks to experiences of knowledge sharing and common work of the students of the different degrees of health sciences, students will start their professional practice with new interpersonal skills. The present teaching innovation project was carried out in the Faculty of Health Sciences at San Jorge University during the academic year 2015-2016. Taking the chronic patient of multiple sclerosis (MS) as a backbone and through the methodology of service learning, a series of activities contributed to the training of the students as members of a multidisciplinary health team.

2 METHODOLOGY

2.1 Participants

This section describes the participants of the project:

Students and lecturers: A total of 9 lecturers and 268 students of all degree programmes of the Faculty of Health Sciences of San Jorge University (Pharmacy, Physical Activity and Sports Science, Nursing and Physiotherapy) were involved (Table 1).

FADEMA (Aragon Multiple Sclerosis Foundation): The professional team (Physiotherapists, Nurses and Management Personnel) and their patients were an active and essential part of the project. In collaboration with the lecturers, they helped to define the needs of the patients and the association. In addition, they were jointly responsible for evaluating the usefulness of the material generated during the project and, by extension, for the learning process.

<table>
<thead>
<tr>
<th>DEGREE PROGRAMME</th>
<th>SUBJECT, YEAR (NUMBER OF LECTURERS)</th>
<th>NUMBER OF STUDENTS</th>
<th>TEACHING METHODOLOGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy</td>
<td>Immunology, 3th year (1)</td>
<td>38</td>
<td>SL, FL, CL</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Physiopathology, 3th year (2)</td>
<td>37</td>
<td>PBL, FL</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Pharmaceutical Care II, 3th year (2)</td>
<td>37</td>
<td>CL, PBL, SL</td>
</tr>
<tr>
<td>Sports Sciences</td>
<td>Physiological Fundamentals of Physical Activity, 2th year (1)</td>
<td>80</td>
<td>LD, SL,</td>
</tr>
<tr>
<td>Sports Sciences</td>
<td>Physical Activity for Populations with Special needs, 3th year (1)</td>
<td>70</td>
<td>SI, FL, LD</td>
</tr>
<tr>
<td>Nursing</td>
<td>Pharmacology, 3th year (2)</td>
<td>50</td>
<td>PBL, SL, CL</td>
</tr>
<tr>
<td>Nursing</td>
<td>Nurse Prescription, 3th (1)</td>
<td>50</td>
<td>PBL, SL, LD, CL</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>Specific Intervention Methods in Physiotherapy III (Neurological Processes), 3th year (2)</td>
<td>50</td>
<td>SL, PBL, CL,</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>Health Research, 4th year (2)</td>
<td>50</td>
<td>CL, LD</td>
</tr>
</tbody>
</table>

SL (Service Learning); FL (Flipped Learning); CL (Cooperative Learning); PBL (Problem-based learning) LD (Learning by discovery)

2.2 General description

The main objective of this project was to generate multidisciplinary learning opportunities for students of Health Sciences based on an integrative approach in collaboration with real patients through the methodology of service learning. The project consisted of three phases (Figure 1):
**Phase 1: Initial Training**

Different degree programmes carried out different teaching-learning activities in order to train their students - in the context of each subject - to perform their professional roles in the care of MS patients as part of a health team. During this period, the students deepened their knowledge of MS, patient needs and their professional contribution to patients’ well-being. The coordinated design of the activities aimed at both the horizontal integration between the subjects of the same degree programme and year and the vertical one between subjects taught in different years. In order to maximize the horizontal and transversal curricular integration, a range of diverse teaching methodologies was selected (Table 1), but service learning in association with FADEMA was used as a backbone.

**Phase 2: Interaction between professionals: "Health Teams" Workshop**

All the students of the different degree programmes, the lecturers and the professionals from FADEMA participated in the workshop. The students were distributed in multidisciplinary health teams formed by two future professionals from each of the degrees. Each team received a clinical case based on a real FADEMA patient. From the data provided and the knowledge acquired during phase 1, students had to design a global treatment plan to improve the quality of life of the patient. Teams were given one hour to complete the task and could use any location within the campus. Next, the different work plans were discussed together with all the participants. In the subsequent debate, all participants discussed and assessed the suitability of the different proposals. At the end of the activity the students were asked to complete a survey to assess the impact of the activity on their learning.

**Phase 3: Analysis and dissemination of results**

The result analysis phase consisted of a series of evaluation activities during phases 1 and 2. The aim of this phrase was to determine the impact on the lecturers and the students (surveys and focus group).

### 2.3 Needs detected

Generally, professionals who work in health teams have never had any formative contact with other health professionals before joining the professional world. Therefore, this project aimed to create learning opportunities that would allow students of various health science degrees to work in multidisciplinary teams in a coordinated and effective manner. In addition to professional learning, strategies of horizontal and vertical curricular integration intended to promote a change of aptitude in future health professionals. Only by working on a common project and with a common goal (patient health) can you recognise and learn to value the work of others. Interaction activities between different future professionals can awaken the critical spirit of our students and contribute to revisiting old health hierarchies. This vision will improve the functioning of health teams based on collaboration, equity and respect for other professionals.

### 2.4 Service performed

After several meetings between professionals from the FADEMA association and the lecturers involved, three main lines of collaboration based on patient needs were established.

1. **Improving the physical state of the patients:** Design of specific sports activities for patients with Multiple Sclerosis. To this end, students of Sports Sciences developed a specific training plan that could be carried out with real patients of the association in their facilities.

2. **Improving the knowledge of the physiological bases of the disease and existing therapies:** Design of reliable and entertaining technical explanatory materials for patients. Pharmacy students produced informative videos about the disease from which patients and health professionals selected the most suitable ones for the association. On the other hand, physiotherapy students carried out a literature review of the most recent techniques for the etiological treatment of outbreaks. The material generated was made available to the team of physiotherapists from the association for its possible application with patients. Finally, nursing students deepened their knowledge of the pharmacotherapeutic follow-up by collaborating with the nurses from the association on the improvement of safety and adherence to the treatment.
Figure 1: Project phases
3 Improving the knowledge of the available pharmacological treatments: Design of a therapeutic guide with updated information that enhances the adherence to the treatment. This work was carried out by students of 3rd and 4th years of Pharmacy in a collaborative way and a single document was designed and made available to the association.

Through these three lines of collaboration and thanks to the use of service learning methodology the practical and real transfer of the knowledge generated was achieved for the clear benefit of the patients.

3 RESULTS

The present project comprised 7 teaching-learning activities aimed at training students as members of multidisciplinary health teams. Six of them were designed for students of the same degree programme. These activities actively promoted the transversal curricular integration in Pharmacy and Nursing and the vertical integration in Physiotherapy and Sports Sciences. It is worth noting that two of these activities are interventions in which students had real contact with patients and developed material and activities for them. This refers to the activity titled "A Video for Multiple Sclerosis" developed by 3rd year Pharmacy students through the coordination of 3 different subjects: Immunology, Physiopathology and Pharmaceutical Care 2. This activity significantly fostered the horizontal curricular integration of the learning of these subjects along with the acquisition of essential professional skills for the treatment of patients and integration into the health team. Finally, multimedia material about high-quality multiple sclerosis (podcast and videos) produced will be used by FADEMA to raise social awareness about this disease. The second activity was carried out in the degree of Sports Sciences and aimed at the vertical integration of learning between the subjects of Physiological Fundamentals of Physical Activity (2nd year) and Physical Activity for Populations with Special Needs (3rd year). Thanks to this activity, the students had an opportunity to design and develop an intervention for the promotion of physical activity in the facilities of FADEMA with real patients. It is worth mentioning that the association particularly appreciated the sensitivity and enthusiasm shown by Sports Sciences students towards their patients.

Thanks to the various activities carried out in each degree programme, the students had an opportunity to deepen their knowledge of patients with multiple sclerosis and, as future professionals, how to address their therapeutic needs. Previous surveys showed that students of all degrees had little general knowledge of multiple sclerosis and patients' therapeutic needs. Likewise, many students did not know what specific interventions were expected of each professional health team, including those characteristic of their own professional role. The various activities carried out in each degree programme increased the level of knowledge of the disease and the professional roles. In addition, thanks to the work in collaboration with other degrees during the workshop, the students were able to learn about the role of each team member as it is shown in the results of the evaluation survey carried out. The resolution of a "conflictive" clinical case prepared by the lecturers and FADEMA professionals and based on real patient data allowed the students to face the difficulties and advantages that teamwork entails. Thus, certain "hot spots" in which the work of two or more professionals could come into conflict were identified and addressed so that the students could reach a point of equilibrium, using the patient's benefit as the main criterion. This activity has had a positive impact on student learning, reinforced the knowledge of their own role as they were responsible for making the rest of the team aware of their role in patient care. In this way, through the awareness of the work of the other members of the group, they learned to value and respect other professionals of the health team. Thanks to this activity, the students were aware of the importance of other professionals not only for the general health of the patient, but also in the practice of their own profession. It is worth noting that the students valued the activities very positively, especially the workshop. Thus, 95.8% considered that the activity will improve their future professional practice, 91.3% believe that it allowed them to develop fundamental skills for their training and recommend teachers to repeat this activity in the future. In addition, 100% of the students surveyed affirm that the activity has allowed them to know and respect the work of other professionals of the health team. This affirmation was further corroborated by their answers to the specific questions on the role of each professional. These results showed that the degree of student knowledge significantly improved in comparison to the results obtained in the pre-workshop survey.

4 CONCLUSIONS

The results obtained in the present work demonstrate the effectiveness of Service Learning as a teaching methodology for curricular integration and the acquisition of interprofessional skills which are necessary for the exercise of professional activity in multidisciplinary health teams. Likewise, the information obtained helps to define a methodology that allows transdisciplinary integrative activities.
involving collaboration between different degree programmes. The accomplishment of joint activities is a complex endeavour since the real usefulness of the project depends on an effective coordination of lecturers, students, schedules and teaching-learning objectives. It is necessary to guarantee the coherence of the objectives and avoid conflicts or imbalances between the objectives of particular degree programmes.

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REFERENCES


