Health in the Twenty-First Century: a Shared Responsibility
An experience for creating an interprofessional working culture

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Abstract

Health in the Twenty-First Century: a Shared Responsibility is a university course that aims to provide students studying various courses with the skills to understand and construct the concepts of health and welfare from an overall perspective and to provide interdisciplinary answers to the most frequent health problems. The aim was to attain capacity for interdisciplinary work by means of acquiring skills such as responsibility, dialogue and agreement skills, knowledge integration, adaptation to changes, tolerance and uncertainty management. Problem-based learning (PBL) methodology was used for working on these skills. With these objectives, a team of teachers from various courses and attached centres of the UAB suggested the creation of this course in the 2004-2005 academic year. This publication presents the results of three years of experience, from 2004 to 2007.

General area of interest of this innovation

The key teaching innovation features of this course were an interdisciplinary focus on health and students' self-directed learning, using problem-based learning methodology (PBL). This interdisciplinary approach was a challenge for both the students and the teaching staff, who had to adapt to working with the logic of complexity and uncertainty.

1. Objectives

The purpose of this project is to create an interdisciplinary working space where the various aspects related to health are taken into account: these include its biological, psychological, social, cultural, economic, political and environmental facets, among others. Based on this purpose, three general objectives were established: (1) To understand and construct the concepts of health and disease from an overall perspective; (2) To generate interdisciplinary answers to the most frequent health problems, without forgetting individual responsibility; and (3) To develop self-directed learning skills In order to attain these objectives, twenty-three learning objectives associated with three specific skills and five transversal skills were established (see the correlation between the skills and learning objectives in table 1). The teaching team, which was accustomed to working in a clearly defined knowledge environment, also had to acquire new skills for working in an interdisciplinary team and to learn the PBL methodology.

Table 1. General objectives of the course, skills and learning objectives

General objectives of the course

1. To understand and construct the concepts of health and disease from an overall perspective.
2. To generate interdisciplinary answers to the most frequent health problems, without forgetting individual responsibility.
3. To develop self-directed learning skills.

Specific skills	Learning objectives Atesa una situació o un escenari d'aprenentatge, l'estudiant ha de ser capaç de:
1. Analyse the concept of health and welfare from an overall perspective.	1. Identify the determining factors that affect the situation considered. 2. Analyse the relationship and involvement of the various determining factors in the problem presented. 3. Formulate pertinent questions and consider possible explanatory hypotheses. 4. Assess the health and welfare needs of individuals from an overall perspective.

2. Work as part of a team and analyse the benefits arising from an interdisciplinary approach.	1. Establish priorities, goals and objectives for action. 2. Identify the various perspectives for analysis and dealing with the same problem. 3. Analyse the role of the various professionals involved in terms of the proposed solution and clearly identify the contribution of their knowledge area.
3. Suggest comprehensive solutions to the health and welfare situations considered and be able to apply them on a general basis	1. Define the advantages and possible disadvantages of interdisciplinary work. 2. Assess the importance of individual responsibility in comparison to teamwork. 3. Plan a working pattern consistent with the learning objectives as a group.
Transversal skills	**Learning objectives** In all the group work situations and in the individual assessment, the student will be able to:
1. Responsibility	1. Keep to timetables. 2. Carry out previously established tasks.
2. Inter-personal communication skills	1. Establish empathetic and assertive communication with classmates. 2. Effectively use listening and non-verbal communication.
3. Effective oral and written communication	1. Express and describe their ideas and knowledge of the learning objectives established in the tutorial sessions in an appropriate and understandable manner. 2. Write their ideas correctly and clearly. 3. Interrelate specific knowledge comparing various perspectives. 4. Argue their position on decisions taken, in a well researched manner.
4. Research capacity and information management	1. Seek relevant information for learning. 2. Use the tools and information technology (ICTs) in a manner appropriate to the established objectives.
5. Tolerance and handling of uncertainty	1. Be tolerant when facing ambiguous situations 2. Develop creative and intellectual thought to manage uncertainty. 3. Develop a critical facet.

2. Description of the project

2.1. Analysis of the context and improvements that the innovation could contribute

The diversity and complexity of interactions between the factors explaining health, the social transformations of recent decades, the culture of specialisation and the fragmentation of knowledge make a paradigm shift necessary that leads to the recovery of a holistic construction of health (Caminal, 2005). The multicausality which explains the majority of health problems and the revealing information that can be obtained from the multidisciplinary perspective must have an important influence on the training of

future professionals in order to provide them with the skills for working in interdisciplinary teams (Orchard, 2005). In this context, it is clear that generic knowledge of understanding and giving answers to health problems from an overall and integrated perspective competition is a basic skill for all professionals, and those in the health field in particular.

Designing and organising a teaching product on health which involves various areas of knowledge beyond the frontiers between faculties and courses is complex and difficult. Despite this difficulty, there have been some studies (Goelen et. al., 2006) that have shown the effects of a positive change in attitudes on the value of interdisciplinary work in the health field after experiments in university education using PBL methodology. As a result, it is therefore to be anticipated that students become familiar with the complexity of health and disease, and analyse and suggest possible answers to the problems generated by the psychological, social and political conditions in which people live.

2.2. Stages in the process of creating a course

The creation of this course took place in the following phases: (1) Establishment of the teaching team and design of the project (2003-2004); (2) Development and organisation of the project and training and experimentation with the PBL by the teaching team.

2.3. Characteristics of the innovation

The following tools and strategies were used to in the students' interdisciplinary learning and self-directed learning: (1) Case studies that ensure an interdisciplinary approach and which are appropriate to the diversity of origins and levels of knowledge of *health* among the students; (2) The ongoing training of the teaching team in the PBL methodology and their training as tutors and (3) Promotion of the cultural change in the attitudes of teaching staff towards implementing teaching in a multidisciplinary team and developing and maintaining learning skills within the framework of the «*learn by teaching*» paradigm. This change requires working in a climate of trust and constructive critical analysis in order to be able to include the complexity of health as a knowledge area that is not defined, and awareness that the knowledge area is incomplete (Consul, 2007).

3. Methodology

The methodology includes two tools: (1) PBL as an innovative teaching tool which facilitates the self-directed learning experience and interdisciplinary teamwork in order to structure the health knowledge unit, and (2) shared assessment as an exercise in responsibility which enables the student to take autonomous decisions.

3.1. Problem-based learning (PBL) methodology

PBL is based on a new paradigm of self-directed learning: The student plays the central role in his/her learning and the teacher is a facilitator or tutor in this process. The starting point of PBL is a situation, case or scenario which enables the student to identify needs in order to analyse the situation based on the learning objectives. The aim of PBL is for the student to understand and undertake an in-depth search for the answers to the problems that arise, which can be transplanted to other similar situations. This methodology includes the development of critical thought and uncertainty management as there is no single solution. It is also the excuse for learning and not the final objective of the process (Branda, 2001).

In order to ensure that the case studies contributed to an interdisciplinary focus on health, the following criteria were established: (1) The health problems considered were a real reflection of everyday life, so that the students easily identified cases from their future professional life; (2) When the text was written, all specialised language and the use of restrictive semantics were removed, no technical jargon was used and its point of view did not focus exclusively on knowledge of the health sciences; (3) They had to answer questions such as: Does it raise a problem which has possible solutions from various knowledge areas? Is it possible to provide an appropriate and effective professional response? Are there strategic formulas for integrating knowledge from the various professions involved? (See Appendix 1).

Student-based learning confers a great deal of importance on self-assessment as an exercise in free and responsible self-criticism, providing that this is subject to the opinion of both the other students and the members of the teaching staff

3.2. Shared assessment

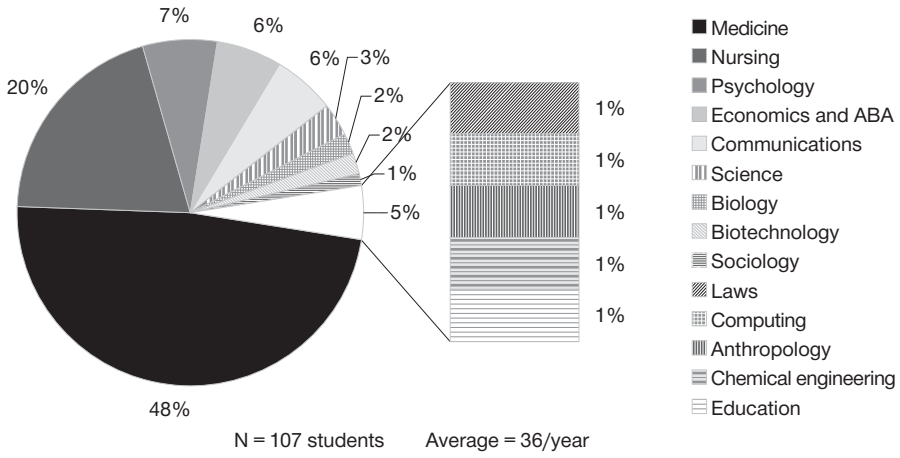
The assessment on the course includes self-assessment, by both the student and the tutor, peer assessment, a written final assessment test and evaluation of the satisfaction level. Shared assessment between the tutor and the students is an effective tool for working on individual responsibility and co-operative work (Aradilla and Tort, 2006). The assessment questionnaires were adapted for the UAB from the Medicine degree document of the Universidad Nacional del Sur, Bahía Blanca, Argentina, after permission was given.

4. Results

4.1. Level of penetration of the course on the campus

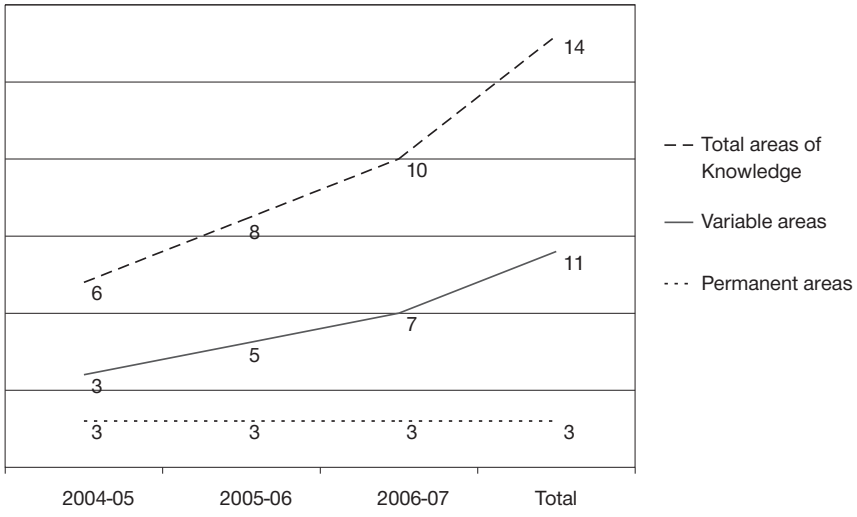
A total of 107 students on 14 different courses registered for the course in the three academic years between 2004-2007, which is an average of 36 students per academic year (see graph 1).

Graph 1. Percentage distribution of students by knowledge area. Period 2004-2007



During the study period, 3 permanent courses (Medicine, Nursing and Psychology) and 11 variable courses were identified. In the 11 variable courses, an increase from 3 qualifications in the first year to 7 in the third year was observed (see graph 2).

Graph 2. Distribution of knowledge areas. Period 2004-2007



4.2. Qualitative and quantitative assessment of the course by the students

The qualitative assessment particularly covered the transversal skills and took place by means of free and responsible self-criticism in the final minutes of the tutorial sessions, and used the information from the assessment questionnaires completed twice during each academic year. Students and tutors were subject to assessment in all phases (see results in table 2).

Table 2. Assesment of transversal skills. This table shows the summarised information (average answer) from the analysis of the components of the 5 transversal skills covered.

SKILLS	AT THE BEGINNING OF THE COURSE	AT THE END OF THE COURSE (% of students questionnaire assessment skills)
1. Responsibility	It is difficult for students to identify their responsibility in their everyday commitments to their classmates (punctuality, completion of tasks required) and they focus their attention on the teacher above all.	Students learn to inform their classmates of their absences and to negotiate the distribution of tasks (75%). They also learn to jointly decide who will assume leadership of a task (60%). They stop continuously looking at the teacher as they did at the beginning of the course (95%).
2. Inter-personal communication skills	Students do not interrupt each other, but do not include contributions from other classmates (active listening).	Students do not interrupt each other, and learn to undertake active listening without answering in a defensive way (75%).
3. Effective oral and written communication	Students express their difficulties with public speaking and expressing their ideas.	Students improve their skills in public speaking and in writing a text justifying their opinions with validated information. Improvement in argumental consistency (80%).
4. Research capacity and information management	Students do not know what and who are valid sources of information and associate searching for information exclusively with consulting the dissemination pages on the Internet.	Students have learnt to consult databases, to consult experts and to visit centres and institutions related with the case study. Improvement in the management and integration of information (60%).
5. Tolerance and handling of uncertainty	The students do not feel involved in situations that are not clearly defined and shift responsibility to institutions.	The students have learnt that there are no single and definite answers to the problems raised (90%).

The level of satisfaction with the course is assessed by means of the questionnaire completed by the students at the end of the course. Given that a significant percentage of the students (20 %) had had previous experience of the PBL methodology, the analysis was stratified according to the categories of the «*prior PBL experience*» (YES/NO) variable created). The results showed no statistically significant differences between the two groups. This meant that when teaching innovation is experienced (PBL in this case), unjustified resistance to it falls. Two positive assessments and two aspects for improvement are described in the open questions section in the questionnaire. The positive assessments were (the most significant expression is given): (1) Positive assessment of the teamwork experience (70 %) («I would never have thought that I could learn from courses so different from mine») and (2) positive assessment of the self-directed learning experience (85 %) («self-directed learning is much more difficult than conventional learning — in self-directed learning we have to set the work ourselves and we think that we learn more»). The aspects for improvement were: (1) Explaining the PBL methodology in more detail (45 %) and (2) More diversity in the make-up of groups (one of the two groups consisted exclusively of nursing and medicine students for two consecutive years) (30 %).

Quantitative assessment: measures the level to which all the specific and some transversal skills have been obtained. These skills are assessed individually by means of the individual's work on a case in order for the student to demonstrate his/her learning in two phases: (1) Make a work plan and plan the search for information; and (2) Respond to the personalised questions raised according to the course objectives and the proposal in their work plan. The average annual marks ranged between 7.5 and 7.8 and the individual marks between 5.1 and 10.

4.3. Qualitative assessment of the teaching innovation experience by the teachers

The establishment of a consolidated and stable interdisciplinary teaching team is one of the benefits generated by this teaching innovation course. Most of the teachers agree that the level required is very high, due to the need to deconstruct the administrative teaching models to which they are accustomed and also to acquire new skills, like the tutor. Contributing to work in interdisciplinary teams in the health field is a long and complex task which involves a cultural change that could start in university studies, as is being shown by this educational experience.

5. Conclusions

1. This health teaching innovation course obtained a very positive level of acceptance and penetration in the university community (36 students/year on average and 14 courses involved).

2. PBL is a methodology that facilitates the acquisition of transversal skills that are closely related to the capacity for interdisciplinary teamwork (active listening, respectful debate and the defence of one's own opinions, the recognition of one's own and others' value and constructive criticism).
3. Working in an interdisciplinary team was a participatory learning opportunity for both the students and teachers.
4. This teaching experience could be extended as a transversal subject on the curriculum of more qualifications, especially those in the health field; it could also be a useful tool in continuous training. In both cases, it would contribute to the cultural change necessary for sharing all health responsibilities.

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Health, interdisciplinarity, problem-based learning, self-directed learning.

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Supplementary materials on the CD-ROM

This publication includes an appendix containing some case studies in pdf format.

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Presentation of the working group

The majority of the members of the Health Teaching Innovation team belong to the «Equity in Health and Network Dynamics» Research Group. Their work is based on paradigm changes in the health model and they subscribe to the theoretical models for Social Determining Factors of Inequalities in Health and the integrationist models of cures from the bilateral arrangement perspective. They undertake interdisciplinary work in the research and teaching fields based on mutual trust, respect and the ethic of action.

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