

The subject «Human Body and Health» in teacher training

Rosa Carrió and Francesc Barquinero

Department of Animal Biology, Plant Biology and Ecology
Faculty of Biosciences
Universitat Autònoma de Barcelona

Abstract

The reason why we decided to conduct this project on teaching innovation in the training of future education professionals is because they are the ones who have to tend to the new realities among our children, over which factors that determine health play a role, such as lifestyles and social influences associated with the fact that the childhood development years are a key point for the acquisition of habits and attitudes.

This project acts on the need to provide in pre-service teacher training knowledge on how the body works and help to promote and protect health as well as to prevent health risk factors.

Through a variety of innovative actions in the teaching methodology, we try to empower participants to manage their own health as well as to gain better knowledge and use of the health resources in our environment.

General area of interest of this innovation

This innovation could be of interest to all students in their pre-service teacher training in the different specialities, as well as in the diploma programme on social education and the Bachelor's in Education. It could also be part of the continuing education of teachers aimed at augmenting their capacity for innovation and adapting to changes.

1. Objectives

The goals of the project correspond to actions aimed at teaching innovations in the course Human Body and Health which are needed to resolve aspects of the current situation, such as:

1. The time of generational change. That is, «How to convey the experience acquired?» The teachers have to reach an agreement on how to work in class.

2. To foster an increase in the level of scientific training of students in the teacher training speciality programmes in the Faculty of Education. This knowledge is quite lacking, especially knowledge that would could be included in the realm of biohealth. There are around 200 students in this course divided into several different groups.
3. To ensure that the educational proposals in this realm are the result of cooperation among professionals in the fields of education and health, taking the following criteria into account: Knowing how to make the teachers the main agents in the school classroom, providing the means so they can share experiences with health professionals, giving more knowledge to make the education in habits and values linked to healthy lifestyles, and finally seeking a balance between school life and specific, occasional and evaluated programmes.

The overarching goal of the project is to view the culture of health in terms of the capacity to control one's own health based on studying how the body works as well as knowledge of the resources around us in order to make rational use of them.

This general objective is based on the following specific goals of the contents and teaching methodology:

1. With regard to the contents:
 - a) To produce teaching materials aimed at improving the training and performance of students in their knowledge of how the body works.
 - b) To raise students' awareness of their control over their own health.
 - c) To train students for knowledge and rational use of the health resources around them, such as healthcare services.
2. With regard to the teaching methodology:
 - a) To use and foster the use of the UAB's virtual campus.
 - b) To train students to manipulate apparatuses and use tools in an educational experimental sciences laboratory.
 - c) To stimulate teamwork as a skill that is needed in order to work with other professionals in the fields of education and health.
 - d) To foster students' participation and creativity in making sure that education in habits and values tied to a healthy lifestyle.

2. Description of the project

In order to describe the innovative actions, we shall present the background and justification for the course Human Body and Health. This course is compulsory in the Primary School Teacher Education degree programme and elective for other specialities within the Faculty of Education at the UAB.

1. Background. The course Human Body and Health got underway in academic year 1992-93 in the Faculty of Education at the UAB in the speciality of Primary School Teacher Education as a compulsory course. In the following academic year, 1993-94 it was included as an elective course in the curriculum for earning

the teaching degree in other specialities. This course was the result of the transformation of the course on Human Biology which was introduced from academic year 1981-82 until academic year 1991-92 in the Primary School Teacher Education degree programme as a compulsory course.

2. Justification. The legal provisions and laws in force call for a course on the Human Body and Health Education in the educational system, which is why it was included as a course in the curriculum for earning the teaching degree in a variety of specialities.
3. The legal provisions and institutional guidelines include the following:
 - a) The 1978 Spanish constitution, article 43.3.
 - b) The Organic Law organising the educational system (LOGSE), 1990, articles 8 and 13.
 - c) Royal Decree 1006/1991 (Official State Gazette 26.6.91) on «Minimum teaching in primary education» and in Royal Decree 1007/1991 (Official State Gazette 26.6.91) on «Minimum teaching in secondary education»....
 - d) In the development of its competences in the realm of education, the Generalitat de Catalunya has issued:
 - Decree 79/1990 dated the 20th of March 1990 (Official Catalonian State Gazette 1280 from 18.4.1990), approval and application of the Health Education Programme at school, stressing its introduction in pre-service and continuing teacher training.
 - The legislative texts that refer to the organisation of the educational system, Decree 94/1992 and Decree 95/1992 dated 28th of April 1992 (Official Catalonian State Gazette 1593 from 13.5.1992) establishing the curricular organisation of Early Childhood Education and Primary Education.
 - Law 15/1990 on Health Organisation in Catalonia (LOSC) from July 1990 includes provisions stating that schools must be a top priority area for introducing healthy habits.
 - Currently the draft of the Law on Public Health in Catalonia contains the need to promote and protect health and prevent health risk factors
4. Likewise, we can list the following guidelines from international bodies:
 - a) The mixed WHO/UNESCO committee in the WHO's technical report no. 193 (1969).
 - b) WHO's goals for «Health for Everyone» since 2000 have pointed to the education of children and young adults to ensure that they have knowledge, skills and aptitudes that enable them to live a healthy life.
 - c) Article 129 of the Treaty of the European Union (1986) states that education and information on health matters are a top priority in European Community action. A number of resolutions and provisions have implemented this, including:
 - The resolution of the Council of Ministers of Education dated the 23rd of November 1988 on health education at schools.

- The proposal for the Community programme to Promote Health D. O . n .C 252 from 9.9.1994. And the creation of the «European Network of Health-Promoting Schools» (ENHPS).

In this teaching innovation project, the goal was to contribute to improving the training of education professionals to adapt them to the ever more diverse requirements of the job of educating.

To this end, the changes were primarily in the teaching methodology as well as in starting a new evaluation system.

3. Methodology

The methodology developed in the teaching innovation was marked by the three actions outlined below:

3.1. Actions to articulate the course based on more knowledge in order to promote and protect health as well as prevent health risk factors

The innovative actions described below were targeted at improving the learning conditions of students from the first to last day of the course.

The first innovative action was in the presentation of the course itself. The start of the course is the first contact between the professor and the class, which generates first impressions that are difficult to erase. In the dynamic of the first class, the four following factors were taken into account:

1. Informing students about how the course was organised. Commenting on each of the sections in the course such as the content of the theoretical classes, the practices, the library and the use of the folders on the virtual campus. There were also several particular requirements, and students were encouraged to participate by asking questions.
2. Trying to generate students' interest in pursuing this course. For this to happen, students had to get to know the professor a bit. This was the time to give an exciting account of the professor's training and experience, as well as their area of research.
3. Gathering information on the students, especially on their prior knowledge about how the human body works as well as on their consumer habits and their perception of their health.
4. Creating a climate that is favourable for interpersonal relations throughout the course. For this reason, the story «The children were alone» (Bucay, J. 2003) were prepared, so that the students could read it out loud and participation could be facilitated from the start through students' oral comments.

Another action that took place on the last day of class was giving each student the poem «The Teacher» (Jou, D. 2004), encouraging students to evaluate the teaching profession based on this poem and mentioning that the author is a specialist in physics and poetry.

In the development of the course, the innovation lay in a programme of coherent theoretical classes as well as promoting a programme of practical laboratory classes and assembling a folder that included the scripts to the practical classes. These practices were held in the experimental sciences teaching labs at the Faculty of Education (Figure 1) and they will be the only ones that these students will be able to conduct throughout their entire degree programme.

Figure 1. Practice of a dissection in the laboratory at the Faculty of Education. UAB



Each student wrote a report on the lab practices. This enabled us to assemble an initial collection of CDs of the lab practices for academic years 2005-06 and 2006-07.

During the month of February, an exhibition of all the practice reports was held that was open to other students from the Faculty of Education. This exhibition was compiled on a DVD.

3.2. More active involvement of students in the learning process

The students have participated in many ways, one of them being by suggesting subjects they were interested in. Based on these ideas, the lecture programme was developed in the four following areas, which covered the following contents:

1. Genetics: Down's Syndrome. Twins.
2. Practical contributions. Basic contents of a school medicine chest. Controlling diabetes in children. Measuring glucose. Airway obstruction (Heimlich manoeuvre). Tattoos and piercings.
3. Health at school in early childhood education: Ages 0 to 3 as the period to promote healthy habits or lifestyles. Family-school relations. Health aspects in

the everyday organisation of schools. The child as the centre and focus of the educational actions at the nursery school. The ill child at school.

4. Immigration: Old causes and new challenges. Documenting cases of child abuse.

All the students were given the contents of the lectures in PowerPoint.

3.3. Development of individual and group work

A basic feature of this development was using and promoting the use of the UAB's virtual campus.

In short, this new methodology encouraged not just knowledge to be learned but also skills to be acquired, namely: understanding and managing knowledge, teamwork, manipulating observation apparatuses, use of experimental lab tools and broader knowledge of the teaching profession.

3.4. Means and resources

In order to implement the new teaching methodology in both group classroom activities and in group or individual work, different spaces in the Faculty of Education have been used: classrooms, experimental sciences teaching lab, computer room, library, etc.

The working plan was deployed over 14 weeks in 28 sessions. A calendar of the working plan for 14 weeks was drawn up in agreement with the working calendar. We began the week of the 12th to 15th of September and went until the 11th to 15th of December. The week of the 18th to 21st of December was a review of the contents. The 8th to the 12th of January was the study and consultation week for students, and the 15th to the 19th of January was exam week.

Efforts were made for the work to be diversified throughout the 14 weeks with two sessions per week.

Resources

We have achieved the goals of the project thanks to the aid received by the Vice-Rectorate for Academic Regulations.

4. Results

The results are based on an assessment of the new teaching methodology and on the evaluation, which are generally satisfactory in the students' opinion.

In the teaching innovation we have managed to study how the human body works as well as generate interest in promoting both individual and collective health and illness prevention. Below we describe some of the activities conducted.

4.1. Production of teaching material aimed at improving students' training and performance. With teaching examples for use at school

1. Improvement in the quality of the teaching materials and group work in all the sessions, both laboratory practices and in a simulation of a situation or a case study.
2. Publishing the subjects with the activities and procedures for doing them. All the students have a copy of all the material.
3. Materials for promoting health at school were developed that reflect knowledge and options and that help to:
 - a) Develop and increase personal autonomy with respect to managing one's own health.
 - b) Get to know the health system: services, main players, organisation and functioning; use the healthcare services responsibly and respectfully.
 - c) Understand and value the rights and responsibilities associated with the use of healthcare services.
4. Real questions on nutrition, accidents, hygiene, vaccines and others referring to health education at schools was gathered and bound.

Finally, we tried not only to ensure access to the information gathered in the course documents but also to generate a debate on the evidence of being able to teach health education at school.

4.2. The classroom studies were improved with independent study actions

The implementation and use of the UAB's virtual campus enabled students to use it as a support to complement the classroom methodology.

The virtual campus gave rise to an exchange with the students that was much more fluid, based on frequent updates of the materials in the folders on the virtual campus and making certain text and representative manuals available for school work. Students, too, participated by adding digital educational resources that they thought might be useful.

However, it is true that there are differences in the use of the virtual campus and there are three types of students: those who used it a lot, those who used it somewhat, and those who used it very little. In one group the use of the virtual campus was made a priority, and this is why they used it the most. All the groups used email to formulate the questions and send notices.

The most representative images of each of the theoretical and practical activities, as well as two main types of documents were made available online: the lessons and the descriptions of certain cases to analyse.

A iconographic base in digital format was gathered after having chosen a series of images and adapting them for publication on the virtual campus.

4.3. Health and education professionals were put into direct contact with each other

This direct contact took place with professionals from different departments at the UAB who explained timely issues with regard to health in the four fields chosen. They demonstrated an extremely cooperative attitude. Plus, it was quite interesting because it clearly showed the interdisciplinary role of health.

1. Genetics. Faculty of Genetics from the Department of Animal Biology, Plant Biology and Ecology in the Faculty of Biosciences in the UAB.
2. Practical contributions. Nursing. Head of the Healthcare and Health Service at the UAB.
3. Health in early childhood education schools. Educator. Director of Nursery School.
4. Immigration. Paediatrician. Head of the Paediatrics Service at Barcelona's Hospital del Mar from the Paediatrics Department at the UAB.

4.4. Students' competences and creativity were fostered

The project fostered the field of scientific competence based on the scientific mastery of methodological tools for educational activities in the realm of health with children and families.

We focused on both laboratory work and computer work in the communication skills, as well as in the practice of oral expression, intellectual skills like formulating questions and resolving problems, and methodological skills like organising time and space, as well as personal and social skills in students' claiming their personal identity.

4.5. The methodology helped to integrate theory and practice

Teaching to gather and compile certain questions referring to health education to resolve in the schools based on erroneous concepts related to children's health, such as: growth of teeth, saliva, worms, indigestion, etc.

The goal was to promote the attitude of resolving questions on health and trying to identify the difficulties in resolving them.

In brief, all the activities aimed at training in aspects of health education and the current situation in early childhood education that the educators must be aware of when working with children and their families, such as: children's health status and their needs, developing contents that enable them to acquire knowledge on health and improving their lifestyle habits while perfecting the motor skills. Likewise, drawing up effective intervention strategies with the purpose of fostering the acquisition of healthy habits.

4.6. A new evaluation methodology

The goal of the evaluation was different in each of the sections: the theoretical, practical and in the educational realm.

It was necessary to hold the practices in a classroom setting. Attendance was required and students had to turn in an individual report on the work they had done. Knowing how to respect, listen and participate in the group work was also evaluated.

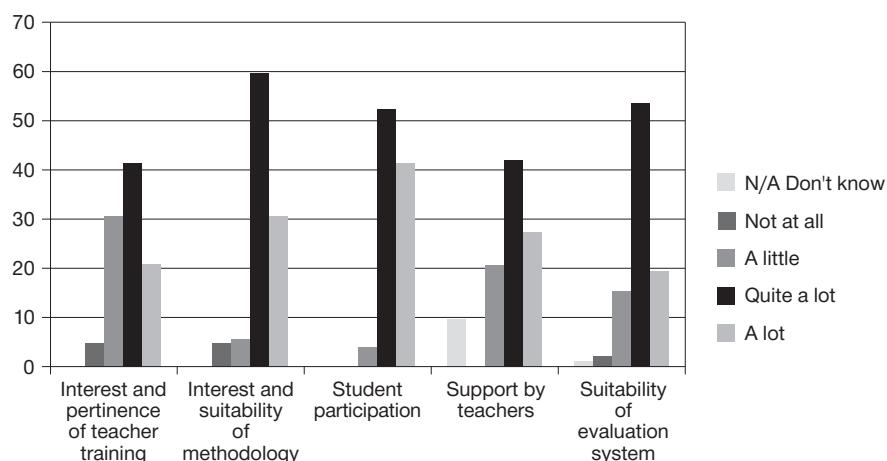
In the theoretical part, students were evaluated on the knowledge acquired as well as their satisfaction with the course through a written exam based on open-ended and closed questions and solving exercises and situations. The final mark was a sum of 30 % for everything related to the practical work and 70 % for the theoretical work.

At the start of the course, we also set out to evaluate students' prior knowledge on their drug consumption habits, specifically alcohol and cannabis. Their percep-

Table 1. Scale of follow-up of the course. Total number of students surveyed: 74

(Results in %)	NO ANSWER / DON'T KNOW	NOT AT ALL	A LITTLE	QUITE A BIT	A LOT
Interest and relevance of the course with respect to the training as an early childhood teacher in accordance with your expectations	0	4.1	31.1	41.9	23
Interest and usefulness of the methodology used	0	4	5.4	59.5	31.1
Evaluate your participation in the course	0	0	4	54	41.9
Do you think that you received enough support (tutoring, backing, etc.) from the professor?	8.1	0	21.6	43.2	27
Usefulness of the evaluation system	1.3	2.7	16.2	54	18.9

Graph 1. Student satisfaction in different areas



tion on the concepts of illness, health and disorders were also quite useful for personal reflection.

A well-established questionnaire should be implemented that can be used to comparatively evaluate the knowledge at the beginning and end of the course.

5. Conclusions

The results were highly satisfactory, and we can clearly predict that this project helps us to prepare the training of education professionals in the fields of health and education. These professionals will affect a sector of the population over which factors that determine their health act, such as lifestyles and social influences.

When implementing this innovation, we saw that it is effective to have the list of skills, actions or activities and the evaluation criteria to be used available from the start of the course. In that way, students have their own learning and knowledge needs in the area of health common to their age, and they also need knowledge to teach to school-aged children and deal with the children's families. Training, educational and professional knowledge must be provided to the future teachers.

In this sense, this innovation is a contribution to the training of new teaching professionals and should continue keeping up the dynamic of the innovation in both the teaching methodology and in evaluation in the fields of health and education.

We also believe that it is timely to make this teaching innovation in this realm at this time, when immigration is a structural fact in our country and therefore is where it can affect the human variability and the concept of health and illness from different cultures (Figure 2).

Figura 2. Children from a variety of countries



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Interesting links

- <http://www.who.int> [2008]
- <http://www.gencat.net/salut/depsan/units/sanitat/htm/ca/infantil> [2008]
- <http://www.gencat.net/benestar> [2008]
- <http://www.adps.com> [2008]
- <http://www.portalcomunicacion.com> [2008] (section on the Observatory of Communication and Health).

Keywords

Health, human biology, education for health, promoting health. Teacher training.

Financing

UAB convocation of aids in 2005 for projects of teaching innovation. Length of the project: November 2005 – December 2006.

Supplementary materials on the CD -ROM

Images of dissection practical session carried out in the Experimental Science laboratory.

Project leader

Rosa Carrió

Department of Animal Biology, Plant Biology and Ecology

Faculty of Biosciences

Universitat Autònoma de Barcelona

rosa.carrio@uab.es

Presentation of the project leader

Rosa Carrió holds a doctorate in biology. She is a full professor in the Faculty of Biosciences and Education at the UAB. She has taught in the Teacher Training programme since 1972. She is a member of the founding team of the «Teacher's School of Sant Cugat», which was continued in the Faculty of Education. She is a member of the Biological Anthropology Unit in the Department of Animal Biology, Plant Biology and Ecology. She has participated in research studies in auxology and educational issues. This interdisciplinary group also includes two professors from the Biological Anthropology Unit, the nurse in charge of Health Care at the UAB and the specialist in early childhood education with experience at numerous nursery schools. Other contributors are Dr M. Rosa Caballin from the Department of Animal Biology, Plant Biology and Ecology and Dr Oriol Valls from the Department of Paediatrics.

Members of the project

Francesc Barquinero
Department of Animal Biology, Plant Biology and Ecology
Faculty of Biosciences
Universitat Autònoma de Barcelona
francesc.barquinero@uab.es

Gemma Armengol
Department of Animal Biology, Plant Biology and Ecology
Faculty of Biosciences
Universitat Autònoma de Barcelona
gemma.armengol@uab.es

Rosa Maria Peleato
Healthcare Service
Universitat Autònoma de Barcelona
rosamaria.peleato@uab.es

Àngels Zamora
Director of the «Sant Medir» Nursery School
c/ Santa Rosa (Gracia)
Barcelona Town Hall
angelszamora@menta.net