

METODOLOGÍAS PARTICIPATIVAS PARA LA MEJORA DEL APRENDIZAJE EN EDUCACIÓN SUPERIOR. UN PROYECTO INNOVADOR CON ESTUDIANTES DE LA FACULTAD DE EDUCACIÓN

Participating Methodologies for the Improvement of Higher Education Learning. An innovative project with students of the Faculty of Education

Natalia González Fernández

Universidad de Cantabria

gonzalen@unican.es

Jose Luis García González

Universidad de Cantabria

joseluis.garciag@unican.es

Resumen

Presentamos nuestro proyecto de innovación con el que pretendemos construir un espacio virtual de aprendizaje duradero complementario en la enseñanza universitaria. Tratamos de acercarnos a las metodologías activas del Aprendizaje Cooperativo y Aprendizaje Basado en Problemas como herramientas para transmitir saberes científicos.

Nuestra propuesta plantea dos ejes fundamentales para mejorar el aprendizaje: utilizar las TIC para procesar, compartir, generar y gestionar conocimientos entre profesorado y estudiantes. Además de proponer enriquecer el aprendizaje de los estudiantes con la implementación de metodologías que favorezca la adquisición de competencias.

En el curso 2011-2012, el profesorado que diseña este proyecto se ha encargado de implementar, seguir y evaluar los resultados, implicando al alumnado de diferentes asignaturas y titulaciones de la Facultad de Educación. Estudiantes que, a priori no se conocían, han trabajado en equipos heterogéneos resolviendo un mismo problema real,

utilizando como vehículo las TIC, creando su propia red personal de aprendizaje, convirtiéndola en un instrumento clave de aprendizaje y adquisición de competencias.

Presentamos algunos resultados recogidos a través de *Focus Group*, demostrando cómo es posible mejorar el aprendizaje universitario, en la adquisición de contenidos, el desarrollo de habilidades para trabajar en equipo en entornos virtuales y la potenciación de la metacognición.

Palabras Clave: Aprendizaje Basado en Problemas, Aprendizaje Cooperativo, TIC, Educación Superior

Abstract

Introducing our innovation project with which we intend to build a virtual learning space complementary lasting university education. We try to approach the active methodologies Cooperative Learning and Problem-Based Aprendizaje as tools to convey scientific knowledge.

Our proposal raises two fundamental axes to enhance learning: using ICT to process, share, create and manage knowledge between teachers and students. Besides proposing enrich student learning by implementing methodologies that promotes the acquisition of skills. During 2011-2012, the faculty who designed this project has been responsible for implementing, monitoring and evaluating the results, involving the students in different subjects and courses at the Faculty of Education. Students who, a priori not known, heterogeneous teams have worked on solving one real problem, using ICT as a vehicle, creating their own personal learning network, converting it into a key tool for learning and skills acquisition.

We present some results collected through Focus Group, demonstrating how to improve university learning in content acquisition, the development of skills to work in virtual environments and the enhancement of metacognition.

Key Words: Based Learning, Cooperative Learning, ICT, Higher Education

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Introduction

Our conception of learning, teaching and assessment takes as essential benchmarks principles that characterize scientific theories developed throughout history and that have hatched in recent decades, anchoring its roots in two basic referents: first, in evolutionary tradition of European pedagogy and psychology, with a strong influence of authors like Claparéde, Vygotsky, Bruner, Freinet, Wertsch or Feuerstein; and another in the American experimental tradition with special emphasis on the theories developed by authors such as Dewey, Ausubel, Reigeluth, Bruner, Sternberg and Freire.

That is, our conception of learning that takes as its perspective the pedagogical paradigms that emphasize the key educational change in higher education in the current decade concept: the active participation of all members of the educational process. Shuell, TJ (1986) summarizes the active participation in the processes of education, both students and faculty, in five essential features:

- Active Learning. You can not learn for another person, but each person has to learn for herself.
- Self-regulated Learning. Students must correctly perceive their own activities, evaluate the results of the activities and appropriate feedback on their own activities.
- Constructive Learning. Individual knowledge is not a copy of reality, but, at least in part, is a personal construction. Students build their knowledge of all playing their perceptions or experiences, depending on their knowledge and opinions available.
- Situated Learning. Learning is understood as a process where the context of situated learning provides or at least reflects real opportunities to apply the knowledge acquired.
- Social Learning. Like other cognitive processes, learning is not just an individual process but also a social process. Each process of teaching and learning is a social interaction.

That is, not only must take into account the skills and competencies that are being proposed in the new educational framework, but the stars of the teaching-learning process to be put into play.

We will describe the relevant theoretical approaches according to our conception of teaching and learning, developing brief but detail some implications for teaching and learning in college.

A. The focus of constructivism. Constructivism is a postmodern power, Personalized Bateson, Gergen, Watzlawick, Maturana, White et al. One of its basic assumptions is that the know and believe is the result of language we understand and convey our perceptions and, on the same issue, there may be different views, all equally valid.

When you speak, we create reality with our partners. This is how, on the basis of our biography, create and change our identity permanently retouched under context and the characteristics and expectations of our interlocutor.

The postmodern constructivism believes that the brain is not a mere vessel where information has been stored, but an entity that builds experience and knowledge, sorts and shapes. Thus, learning is understood as a process of active participation and adaptation of the individual to the environment, through which it builds knowledge. This principle necessarily leads to two basic features that should have all learning, Garcia Vidal, J. (2003):

1) Significance, so I have learned "sense" for the learner, which is mainly the connection of new cognitive schemas with which the student has prior to the process of learning. To achieve meaningful learning is basic:

- Initially assess prior knowledge of students, both overall level of the course (Appraisal Questionnaire) as the beginning of each unit of work (previous questions, debates, discussions and exhibitions).
- Perform a systematic way, insightful questions during development activities, and in this way, guide students in the development process of knowledge construction.
- Give examples that are close to the previous experience and knowledge of students.

- Reduce the level of abstraction of the contents taught using graphic-iconic conceptual representations.
- Promote the use of self-assessments, and the development of conceptual structures of each unit of work.

Functionality, inducing principle enhance learning in two fundamental characteristics: on the one hand, having the maximum regard to the daily life of the student; and other possessing a strategic nature, ie, that serve to acquire new learning. Achieving functional learning entails:

- Relate new learning to prior knowledge and experience of the students.
- Analyze the functions and effects that the knowledge acquired in the future professional practice.
- Prioritize knowledge of a procedural nature.

B. The sociocultural approach. The core of Vygotsky's approach is to consider the individual as the result of historical and social process where language plays an essential role. For Vygotsky, knowledge is a process of interaction between the subject and the medium, but the medium understood socially, historically and culturally. Precisely Vygotsky part of the social dimension of consciousness is primary, while the individual dimension is secondary and derived from it. For Vygotsky, "the first problem is to find how individual reaction proceeds forms of common life." Therefore, an important consequence of this thinking is that to understand the cognitive processes have to first understand the details of the social situation in which they appear. And this principle is what has to promote systematically in our teaching activities:

- Continuous interaction with students: oral presentations before, during and at the end of them. Favoring than ample discussions on the contents that are being developed at all times occur.
- Continuous interaction among students by conducting work, reflections and tasks on the knowledge imparted in both team partners as autonomous and individually.

C. The dialogic approach. Freire developed a dialogical approach to education in the sixties. Sometimes this contribution has been understood narrowly, limiting the dialogue between teachers and students in the classroom. But it is not, the dialogue proposed by

Freire covers the whole community that teaches and learns including other professionals, family, etc., in addition to students and teachers. All influence learning and everyone should plan together. The dialogue in this context, is understood as an interactive process mediated by language and requires to be considered with dialogic nature, made from a horizontal position in which the validity of the interventions are directly related to the ability argument of the interacting, and not the positions of power they occupy. For Freire (1997) dialogicality is a prerequisite for knowledge.

Dialogue is a tool to organize this knowledge and implies a critical stance and a preoccupation grasp the reasoning that mediate between actors; and these two aspects are the elements that mainly constitute the "epistemological curiosity" that promotes knowledge construction.

Arrow R. (1997) explains why all the educational experiences worldwide that are achieving success in overcoming inequalities are based on the characteristics of dialogic learning as education professionals combined action of students, families, and community. This author believes that the importance of this approach increases in information society in which learning depends primarily and increasingly all interactions of students, not just those received in the classroom or just their prior knowledge (Arrow , R. 1999).

Therefore, our conception of teaching of the concept of learning presented above, considering teaching as an activity in the service of acquiring constructive and interactive learning.

For the proper implementation of this target we consider essential to consider during the teaching-learning process the following principles (González, N., 2009):

- Teaching to learn. It involves not only the domain of conceptual and procedural knowledge but also attitudinal. This principle leads to two important characteristics of our teaching:
- Devoting great efforts to design appropriate initial knowledge of the students and the difficulties they encounter during development teaching situations.
- Adapt the level of complexity of the proposed activities by segmenting in steps of them, cooperative work and teaching of appropriate techniques to solve problems encountered.

- Mediation. Teacher assumes a mediating concept between the content and the cognitive structure of the students.

Following these assumptions we chose to implement the active methodologies - participativas of Problem Based Learning and Cooperative Learning, in conjunction with Web 2.0 tools in our innovation project that also involved a process of action research as students participated and benefited together with faculty of the results towards their skills improvement.

Problem-based learning is a teaching and learning method that starts with the presentation or design problem by the teacher, the student must solve to develop certain predefined skills. Part of the idea that the student aprende more appropriately when you have the chance to experiment, test, or simply inquire about the nature of events and daily activities. Therefore, the problem situations, base method, learning situations tear real world.

Learning is much more exciting when questions requiring intellectual effort of the student and not the mere repetition of a work routine learned Furthermore no offers students all the information needed to solve the problem, but it is they posed to must identify, find, select and use the resources.

This method is based on the idea that the problems posed certain difficulties are best resolved in collaboration with others. This collaboration facilitates the identification of learning needs, finding necessary information, argumentation and presentation of viewpoints or solutions and debate.

Currently considered to Problem Based Learning can be one of the appropriate methods for new models of higher education (Buck Institute for Education, 2002; Estudios Superiores Monterrey Technological Institute, 2004; Benito, A. and Cruz, A., 2005 , De Miguel, M. (ed.) 2006).

Cooperative Learning. This is an interactive approach to organizing work inside and outside the classroom, in which students are responsible for their learning and that of their peers, a strategy for achieving stewardship goals and group incentives.

This method prioritizes collaboration instead of competition. Implies a relationship of commitment and complicity that gives excellent results in the cognitive and attitudinal

areas, but mostly it is an appropriate method for acquiring skills regarding peer interaction, problem solving and the acquisition of attitudes and values.

The essential components that support effective cooperative learning are positive interdependence, face-to-face interaction, individual accountability, social skills and evaluation of the process-product (Johnson, D, Johnson, R. and Hulebec, EJ, 1999 , Gillies, RM and Ashman, AF, 2003; Monereo, C. Duran, D., 2003).

As Web 2.0 tools, we have chosen to select and propose our students tools such as:

- The blog articulated as a benchmark in the post project guide, calendar-agenda, documentation and other online resources to guide students. Students, meanwhile, uses it to publish their work, opinions and other contributions, so they are listed on the internet is easy to access and permanent, so favoreciendo project monitoring.
- Twitter network microblogging as enhancing communication and rapid interaction among its members mediante short messages. Easily accessible with mobile phones, widely widespread in students.
- Google + as video-conferencing system that allows to go beyond what Twitter provides visual and allow simultaneous communications between several participants, regardless of where they are also able to share documents and related files to find jobs during the communication.
- Google Docs as a collaborative work-oriented Internet application that allows students to work both synchronously and asynchronously, independent of the place from which to do so (classroom or from home).

Experience description

This project is aimed to realize what the new European university system enacts: give the student the prominence it deserves, more consistent application for the development of competencies based on active and participatory methodologies techniques, skills training and professional skills required in the professional qualifications of each profile, so that theory and practice and the use of ICT as a tool to support the teaching and learning process is related.

In this sense, we have extracted the maximum benefit to the advantages of working in heterogeneous groups consisting of students from different subjects and different degrees, so that each has brought experience from one's own learning of the subjects studied in their degree. In this way, each student has received the information and knowledge of the hands of two fundamental responsibility: teaching peer tutor group. At the same time, each student has developed the role of tutor their peers in certain tasks and functions preform established following the guidelines established by experts as Duran, d .; Torró, J. Vila, J. (2003). Therefore, we start from the notion that peer tutoring provides learning opportunities for all members of the teams.

This experience has involved three professors from the Department of Education of the University of Cantabria with their subjects:

- .- Subject: Teaching of Primary Education. Theoretical Foundations. Degree of Education. Specialty Childhood Education, 3rd year.
- .- Course: New Technologies applied to Education. Degree of Education. Specialty Physical Education, 3rd year.
- .- Subject: Design, Techniques Information Collection and Analysis of Quantitative and Qualitative Data. Degree of Master in Research and Innovation in Educational Contexts.

The total number of students involved in the experience has been 9 students. It was decided to select working groups of three students by titration to operationalize cooperative work in the overall group of nine students.

We established a set of skills to be developed by all students involved in the experience, through the established activities together, and in relation to the objectives proposed in the project. The powers set out in the project are based on a purpose derived from our conception of what is to achieve university education:

- 1 Promote greater involvement of students in their learning as well as the assumption of responsibility that have the same, which requires more subjects and motivation toward learning.
- 2 Acquire the contents of the course, regardless of the final evaluation, and replacing it by a process of continuous and reflective meta.
- 3 Encourage teamwork in virtual environments, through practice and personal experience

4 Streamline the process of teaching - learning by involving them in its development and evaluation.

5 Develop an appropriate level of metacognition in students, so that what is learned in the experience can be applied in their professional lives.

Implementation planning meant organizing a series of phases, in which we specify the actions to be taken:

A. First Phase. Structural Aspects

Implementation of digital tools to develop project proposals.

Various workshops and training of teachers and students participating (updating of knowledge and use of ICT).

B. Second phase. Project development.

Initial seminar (classroom): Intended for communication purposes and objectives of the project, features, impact and benefit in the training of future teachers all directly and indirectly involved. It also takes advantage of space as the original promotion of coexistence of actors involved in the project.

Clarify the organization of the coordination process and tutoring between different subjects involved and the encouragement of participation in groups designated cooperative work.

Also, individual and group tutorials (face and / or virtual) will be performed.

Each group receives a slogan of action by the teacher.

From this protocol must organize and plan the work of the group through consensus.

Working in small groups sharing sessions and contrasts the virtual environment with other students and teachers and even the process of developing the project itself through the advice of all.

Fortnightly coordination meetings (face and blended) among teachers to establish common and cross-cutting aspects of all subjects involved in the project design and practical activities.

C. Third Phase. Assessment of the project.

Evaluate the impact of the project stakeholders through constant reflection contained in the various networks of interactive learning, some of the instruments used: blended social networking, instant messaging, and live seminars.

Conclusions

Overall assessment of the teachers participating in the design, implementation and development of the project is clearly positive. The student participation has meant a substantial increase them in their final calificaicón subjects. The overall student satisfaction measure closed questionnaires and development of a discussion group is really high.

A large majority recognizes that although initially were not used to organize tasks group but individually, throughout the development of the project began to feel the benefits of being able to "rely" on their peers to answer questions, write proposals for solutions and make decisions before submitting drafts or final solutions to the participating teachers, also greatly appreciated the opportunity to have three teachers and not just one as usual, to resolve doubts and problems.

Students also value the potential of instructional design Vertebrate about analyzing and solving a real and present problem for the development of socio-professional competencies proposals on experience such as increased intrinsic motivation, reflective thinking, self-criticism the responsibility for their own learning, etc.

We believe that the present moment, where you are applying and testing schedules new undergraduate degrees in our universities, is an excellent time to plan curricula necessary to implement the type of methodology that we have implemented in this innovation project in which teachers binds and coordinates to design a set of classroom activities and on-line, to resolve between students of different subjects and specialties, so that the student, at least in our experience, triples the use of learning to be monitored and supervised by three teachers and eight companions. Teachers also reduces the number of activities to design a single for three different subjects, through the proposed resolution problem extremely topical as we proposed entitled "Establishment of new channels and channels of participation to foster

the relationship family-school in rural areas ", in which we were able to explain and apply student development and application of theoretical content of our courses.

Despite the difficulties encountered, which have been mainly due to lack of habit and self-scheduling of students; the organization of our curriculum that promotes the development of quarterly subjects loaded with activities and work cluttering the work agenda of the students, because the teacher is not coordinated to propose common activities or projects and the lack of time to develop Depth resolución in the proposed problem, we consider a satisfactory result and hope to participate in the next call that our university proposes to develop our continued innovation project.

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