Psicología Educativa

Cross-curricular education for solidarity in the training of psychologists and educators

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ABSTRACT

The European Higher Education Area involves major changes in the teaching/learning process for the acquisition of transversal competences, such as social and civic skills. A need for active learning methods is established in order to develop students' ability to make decisions and learn independently, reflectively, and critically, thereby promoting these skills. Considering the importance of a program for the training of ethical and solidarity values within the university curriculum (Educational Innovation Program, PIE10-127), we carried out a comparative study on ethical values in college students before and after the program application and an evaluation of the effectiveness of different active methodologies to promote the acquisition of solidarity and its impact on performance. Participants in this study were 4,103 university students, aged 18 to 57, from the Faculty of Psychology and Educational Sciences of the University of Malaga. The results show an increase in the acquisition of solidarity skills following the implementation of the program and that active methods have a positive impact on academic performance. Hence, the conclusion is that there is a need to strengthen these values.

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Educación transversal para la solidaridad en la formación de psicólogos y educadores

RESUMEN

El Espacio Europeo de Educación Superior implica importantes cambios en el proceso de enseñanza-aprendizaje para la adquisición de competencias transversales como las sociales y las ciudadanas. Se establece la necesidad de utilizar metodologías activas de aprendizaje para desarrollar en los estudiantes la capacidad de tomar decisiones y aprender de forma autónoma, reflexiva y crítica fomentando estas competencias. Al considerar la importancia de un programa de formación en valores de solidaridad y ética profesional que se incorpore al currículum universitario (Proyecto de Innovación Educativa, PIE10-127) se realizó un estudio comparativo sobre valores éticos en estudiantes universitarios antes y después de la aplicación del programa así como una evaluación de la eficacia de distintas metodologías activas para fomentar la adquisición de competencias solidarias y su incidencia en el rendimiento. Los participantes en este estudio han sido 4.103 estudiantes universitarios, con edades comprendidas entre 18 y 57 años, de las facultades de Psicología y Ciencias de la Educación de la Universidad de Málaga. Los resultados demuestran un incremento en la adquisición de competencias solidarias tras la aplicación del programa y que las metodologías activas empleadas inciden positivamente en el rendimiento académico. La conclusión apunta hacia la necesidad de fortalecer dichos valores.

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Society increasingly places demands on professionals to know how to manage complex situations which consider the human and social aspects involved. The rapid development of knowledge also requires professionals to become "lifelong learners", that is, to be able to update their knowledge and competences while constantly improving the quality of their professional practice.

The European Space for Higher Education has recently stressed its interest in training future professionals as social change agents, not only in relation to creating and managing new knowledge but also to promoting a higher social cohesion among citizens. There are many risks associated with using the current scientific and technical knowledge for purposes other than the good of the community, changing our world, and building a more equitable society. The decision making and ethical criteria leading the application of such a knowledge depend on ethical training of people responsible for such decisions (García Garrido, 2008) rather than exclusively on professional or scientific training.

It is also the university's responsibility (and not only at compulsory education levels) to educate students to exercise their civic responsibility and to be committed to the community, based on their university knowledge. In order to face the challenges posed by a globalized world, Legendre (2007), Martínez and Esteban (2005), and Roegiers (2006) stress the urgent need for higher education to prepare competent people who know their field of expertise, as well as people who have solidarity competences, are able to analyze the current challenges and ready to commit themselves to helping others. The above authors also state that only competence training (when it is well-delivered) can really equip students to become citizens capable of acting in the direction of their own values.

Delors (1997) states that education is one of the keys to the 21st century and must consist of a constant re-educating of the person in terms of their knowledge, skills, and power of judgement. The concept of "Education Society" is here evoked as the place where the individual's personal and social life becomes the aim of learning. This is an overall experience that lasts for a lifetime, at both a practical and knowledge level. In sum, we must all "learn to learn." Delors also clarifies that the Knowledge Society makes professionals depend on one another. As suggested by other authors and researchers (Carlo, Roesch, & Koller, 1999, Wilson et al., 1998; Savater, 1996), current societies pose a set of requirements related to the education of a system of values in students.

In line with this, the present program suggests that the university is one of the main dynamising agents in the promotion of solidarity and volunteering activities. The program has been very favorably assessed, both externally and internally, and from both qualitative and quantitative points of view.

The present study is framed by the innovative educational program "Cross-curricular Education for Solidarity in the Training of Psychologists and Educators" (PIE10-127, Call for Innovative Educational Program, 2010-2012). The general aim of this program is to promote the acquisition of solidarity competences, encourage volunteering work with disabled people, and raise awareness in the university context. Participants in this project were a multidisciplinary group of 24 professors from 13 different disciplines, who suggested a number of cross-curricular educational activities aimed to promote solidarity among their students. Activities were adapted for each educational programme and included the implementation and adaptation of advanced learning methods to encourage autonomous learning, active participation, and the use of ICT. A total of 4,304 students from 34 subjects have benefited from this program at the UMA (University of Malaga).

The activities developed were as follows:

a) Discussion of the importance of solidarity action in the current world, in particular in Spanish and Andalusian schools, and spreading this discussion in ESO (Compulsory Secondary Education).

b) Completion of a questionnaire on moral values and attitudes and social volunteering activities and analysing its results by means of discussion groups to reflect on the causes and consequences of lack of solidarity.

c) Carrying out a survey and a self-report for students to assess the impact and satisfaction of activities, together with the difficulty and average time spent on each activity.

d) Students' design of a solidarity action and writing of a report, which is to be uploaded the following academic year.

e) Arranging forums and wikis on different dates for each class group.

f) Volunteering with disabled students in the UMA as well as with class groups without disabled students.

Next, the objectives of the research (PIE10-127) wherein this study is framed are listed below:

• To raise awareness and promote solidarity and volunteering within the university context.

• To promote the acquisition of cross-curricular competences, such as solidarity, by means of the joint participation and collaboration between students and university professors from different disciplines and teaching contexts.

• To contact associations and humanitarian organizations working to promote solidarity towards disabled people, justice, and social peace.

• To contribute to a comprehensive education for university students where solidarity plays a crucial role.

• To provide students with theoretical and practical knowledge about the lack of solidarity and the value of solidarity, by carrying out practical and interesting activities.

• To present daily solidarity as being accessible to all and not as a utopia.

• To encourage debate about the lack of solidarity in daily life.

• To promote practical activities to put into practice what students have learned about daily solidarity activities.

• To introduce practical solidarity activities as a daily part of university life.

• To promote volunteer work with disabled students at the University of Malaga.

• To encourage students to persuade other students to carry out solidarity activities.

• To encourage students to carry out educational activities aimed to promote solidarity, which foster and develop competences related to teamwork.

• To assess moral values and attitudes towards volunteer work with disabled UMA students and solidarity activities, both before and after developing the project.

• To reflect on ethical behavior in the workplace, stressing solidarity action.

• To encourage students to adhere to the ethical standards that should govern social life as well as national and international relationships.

• To analyse the values gathered in the Spanish Constitution with regards to solidarity.

• To spread the project within the university context into secondary schools and other educational institutions, in order to be adapted and implemented by means of a number of activities (contests, conferences, exhibitions, murals, posters, etc.).

Both the present research and the University of Malaga's strategic plans for the current courses and degrees stress the relevance of promoting students' acquisition of solidarity competences as well as the need to carry out a more accurate assessment of attitudes and interests towards moral issues. This is because one of the main cross-curricular competences to be promoted among students is social and citizenship competences. This would allow for a better design of teaching activities in the current educational programs, in order to develop the afore-

mentioned competences and assume the university's social responsibilities. Therefore, an assessment of the impact and satisfaction reported by students in relation to educational activities which promote solidarity is crucial here, together with a more accurate assessment of students' attitudes and interests in relation to moral issues. We believe this is important for the planning of an educational program which takes into account criteria of an ethical nature as part of these cross-curricular competences that must be promoted, if the aim is to create socially responsible European citizens. So in our context, it is a priority to get a more accurate assessment of toward and interests in moral issues for the planning of educational practice criteria, considering ethical and moral values as part of these generic skills to be encouraged in European citizens. It is necessary to assess the degree to which these skills are promoted cross-curricularly. To do this, in the present study a rubric that allows for an integration of different assessment methodologies used to develop active generic skills, such as those involving ethical values and solidarity, was designed. Other authors consider that this rubric is a tool that, among other aspects, allows tutoring and the evaluation of students' work (Maroto, 2010; Torres Gordillo & Perera, 2010). They can be used in any area of knowledge, though the preparation takes time, but it allows the students to know exactly what the teacher is going to require (Peirce, 2006). It presents different phases (Torres Gordillo & Perera, 2010): a) identification of those competencies that students are expected to work out; b) determination of evaluation criteria that will connect competencies with the skills to be acquired by students for activity proposals; and c) the use of a nominal scale, which is allotted different values used to classify and measure criteria. The section not only aims to assess students' knowledge, but also to serve as a reflection tool that allows you to become aware of what is learned. The rubric used has been agreed upon by all teachers and reviewed by experts in methodology. The student is in a clear heading to meet teacher expectations about what he or she is expected to do in a given learning situation concerning ethics and solidarity.

The objectives of the present study are: (1) to present the structure of the innovative educational program "Cross-curricular Education for Solidarity in the Training of Psychologists and Educators" (PIE10-127); (2) to conduct an analysis of moral values in a sample of university undergraduate and postgraduate students before and after their application of the program; (3) to assess the impact and satisfaction reported by these students in relation to a number of educational activities for solidarity, framed by the present program; and (4) to assess the effectiveness of different active methodologies to promote solidarity skills acquisition and its impact on performance.

Method

Participants

The sample consisted of 4,103 university students aged 18 to 57 years old, 36.7% men and 63.2% women, attending the Faculty of Psychology and Education at the University of Malaga (Spain). The questionnaire was completed collectively as a whole class. A non-probability-based incidental sample was used. Although there are data from a sample of over 4,103 college students from different years and qualifications, the evaluation priority interest lies in this sample of students given the recent implantation of the new degree programs and graduation at the University of Malaga. In that sense, in our context, for the University of Malaga this assessment is a priority in order to plan training activities from the start of the program, to enable the promotion of ethical responsibilities related to the exercise of a committed and responsible European citizenship.

Measures

Questionnaire of Moral Values and Attitudes [VATM in Spanish] (Trianes, 2002). It consists of 11 closed items with a Likert-type scale for responses, where students are asked to decide to which degree they agree with a number of statements. Additionally, there are two open questions (12 and 13) aimed to find out students' potential involvement in a non-governmental organization (NGO) or a solidarity activity (i.e., an activity without a financial reward) as well as their reasons for doing so. The reliability and validity analysis of this instrument presented satisfactory results. A self-satisfaction scale was also used to ask participating students about their degree of satisfaction in relation to the solidarity educational activities which they undertook.

Questionnaire of Social Environment in the Center (CECSCU, Trianes, White, de la Morena, Infante, & Ray, 2006). The CECSCU assesses the climate in the center and in the faculty by means of 14 items. The questionnaire measures the extent to which the learning environment stimulates effort and emphasizes cooperation. Teachers are evaluated on the quality of their interactions with the students, the perceptions of students and teachers of personal wellness and positive feelings for being accepted and valued by others in daily life. This is a questionnaire that focuses on interpersonal relationships between students and the faculty. It consists of two factors: a) climate concerning the center, which consists of eight items reflecting the social climate in the school, evaluating students' perceptions of helping behaviors, respect, safety and comfort in the center. Example items are, "When there is an emergency, there is someone to help me" or "My university is a very safe place"; and b) climate concerning teachers, containing six items referring to the student-teacher relationships. It represents perceived satisfaction in the relationships with teachers, analyzing their performance according to values of justice and respect (e.g., "The teachers of this school are nice with students" or "When students break rules, they are treated fairly"). The results show an alpha of .77 for the 'Climate concerning the center' factor and .72 for the 'Climate concerning teachers' factor. With an interval between test and retest of 9 months, the correlation obtained was .61.

Test Exchange (Casares, 1995). This instrument, widely applied to evaluate college students' values, lies in a comprehensive anthropological model featuring ten categories of values: physical, intellectual, emotional, aesthetic, individual, environmental, instrumental, religious, social, and moral values. In this study the analysis has focused on the social and moral values. Each item is answered on a five-point scale: very nice (MA = 2), pleasant (A = 1), indifferent (I = 0), nasty (D = -1) and unpleasant (MD = -2). Each category of values consists of 25 items, so that the highest possible score is 50 (all items rated 'very nice') and the least score is -50 (all items rated 'unpleasant'). Scores near 0 indicate indifference or extreme scores caused by dispersion of opposite sign, i.e., deviation being high. The reliability of the model according to Cronbach's alpha is .97. The tool can be powerful in helping us manage more effectively to see how values are beginning to take shape, what values means, and which ones could be raised as target values.

Empathy Index Scale (Mehrabian & Epstein, 1972, adapted by Bryant, 1982). This scale consists of 22 items to obtain a general measure of the degree of empathy experienced by college students raised in different situations (e.g., "I am concerned to see a partner who cannot find anyone to perform work or activities, "I worry when I see a fellow suffering because of any incident "). This scale, adapted by Bryant (1982), was translated by to expert speakers in the research group. Responses range from 1 = never to 4 = always. The scale showed a reliability coefficient of .82. The internal consistency of the scale is .67 and gender differences in empathy were statistically significant, with women scoring higher than men.

Questionnaire of Prosocial Behavior (CCP, Roche, 1995). This instrument consists of 20 items with Likert response format, where 1 = always, 2 = often, 3 = sometimes, and 4 = never. Examples of items are as follows: "If ever there is a conflict between my colleagues as group or class, I rise to help and so they can talk quietly"; "When a colleague needs some material that I have, I offer him/her to share it or I give it to him/her". The internal consistency (Cronbach's alpha) of the scale in this sample is .91, and test-retest reliability (with an interval of three months), .71.

"Use of an Inclusive Rubric by Teachers". It evaluates the application of active learning methodologies based on problems, concept maps, educational text excerpts on solidarity, and oral statements about solidarity made by students (communication skills publicly displayed by students). To evaluate the quality of the oral work (i.e., quality control of the presentations), the concept mapping, and problem-based learning in these subjects, teachers used a five-point inclusive rubric: 1 = very poor, 2 = poor, 3 = fair, 4 = good, and 5 = very good. An on-going formative evaluation process was followed. At first, an evaluation of the course was carried out halfway the section and a final evaluation at the end and at the final exam. The scale of achievement used a 10-point scale (the average performance in that subject was officially reflected in the minutes). The performance has been accurately assessed, using a rubric that includes both quantity and quality of the comments made during the practices, text/points for discussion on ethics and education for solidarity, the importance of education for solidarity in the world today, reflections and comments of texts about solidarity, the portfolio, the final practice dossier, and final exam on practice; for example, education and cross-curricular themes, groups at risk of social exclusion, orientation programs and labor insertion in sociocultural disadvantaged groups, etc. depending on each subject.

Procedure

Before completion of the different tests, students were informed of the voluntary nature of their participation and that confidentiality of data was guaranteed at all times. Students had unlimited time to complete the questionnaires and were allowed to ask for clarification with regards to their answers or how to answer the questions. This study was approved by the corresponding Ethics Committee of the institution conducting the research. The administration of the tests was carried out by professors/researchers who were trained to explain the objectives to teachers as well as to give the appropriate instructions to students. They explained the objectives to students and gave them instructions for completing the questionnaires. Students completed them as a whole class in the different classrooms. Before the analysis, questionnaire responses were carefully checked and recorded.

Data Analysis

The study conducted descriptive analyses, including percentages, means, and standard deviations. The Student's *t*-test was applied on independent samples to find out if there were statistically significant gender differences in the assessment of attitudes toward and interests in moral issues. The data coding and analysis was carried out by means of the Statistical Package for the Social Sciences, SPSS 17.0.

For the evaluation of the project monthly meetings of team members were held. To assess the impact of these active methodologies (problem solving, mapping or conceptual frames and cutting oral solidarity) statistical analyzes were also performed using SPSS 17.0. Descriptive analyses were performed and mean differences were calculated in the use or not of these active methodologies, along with an analysis of bivariate correlations between scores on problem solving, conceptual maps or frames and communication skills gained through rubric. Finally, a regression analysis was performed to check the predictive ability of these methods, using the final grade as predictor.

Results

Table 1 shows the existence of significant differences in the social environment of the center, moral values and attitudes, other ethical values, empathy and prosocial behavior that increased after the implementation of this cross-curricular program of educational activities for solidarity.

Table 1
Pre- post treatment mean comparison in the group of college students participating in the program

	Pre	Post	
	M (SD)	*M (SD)*	*t*
Social climate center	2.30 (0.75)	4.61 (0.050)	-8.78**
Moral values and attitudes	1.69 (0.63)	3.84 (0.037)	-11.27**
Values	1.84 (0.98)	3.69 (1.03)	-5.48**
Empathy	0.07 (0.26)	0.92 (0.27)	-8.12**
Prosocial behavior	1.38 (0.65)	3.76 (0.43)	-13.21**

**$p < .01$

Table 2 shows students' results with respect to the degree of satisfaction with the educational activities for solidarity. Such activities were very successful and may even have had an emotional impact on students (according to students' opinions), many of whom stated that they had deeply reflected on their moral values.

Table 2
Degree of students' satisfaction in relation to the educational solidarity activities carried out

Solidarity educational activities	Mean Score (*SD*)
1. Participating in the "Education and Solidarity" forum	3.49 (0.55)
2. Film viewing: "It all starts today"	3.81 (0.44)
3. Designing solidarity activities	3.86 (0.45)
4. Debating on the importance of solidarity action nowadays	3.63 (0.64)
5. Filling in questionnaires via the e-campus and analysing and discussing results	3.72 (0.59)
6. Making a wiki on solidarity news	3.70 (0.89)

Regarding the use of active learning methodologies to promote the acquisition of skills and training supportive ethical and professional values, the following are the most significant results obtained. There are linear relationships between academic performance (final classification) and the results of applying different strategies evaluated by the rubrics. Bivariate correlations (Pearson) revealed significant relationships in all cases (Table 3) between the use of these active methodologies for learning content and professional ethics education for solidarity with the academic performance in the final dossier practices (assessment of the quantity and quality of comments and reflections) and the final exam score.

We also used the Student's *t* test to see if there were significant differences in the final grade among students who had used these methodologies to promote active learning skills acquisition solidarity (e.g., those who took the activity related to the theme contents, instructional design and practice of programming design, training content as acts of solidarity, etc.) and those who had not (control group). We found that students using these active learning methodologies had obtained better grades than those who did not

Table 3
Pearson correlation coefficients between active methodologies employed and academic performance (content solidarity)

Active learning methodology	r
Troubleshooting	.93**
Concept maps	.82**
Basic communication skills	.89**
Specific communication skills	.92**

** $p < .01$

(Table 4). Differences are significant (compared to control group) in performance, Students who used problem-based learning (content ethical dilemmas and solidarity), mapping or conceptual frames, and development of oral presentations with a solidarity design scored higher. Students who used these innovative methodologies in the context of this subject obtained a higher overall return, evaluated on a 0-10 scale.

Table 4
Mean difference in academic performance based on each learning strategy used by the subjects

Methodology	With methodology M (SD)	No methodology M (SD)	T
Problem-based study	8.51 (0.84)	5.79 (1.04)	16.48**
Concept maps	8.33 (1.23)	5.95 (1.17)	11.34**
Basic communication skills	7.41 (0.65)	6.08 (1.24)	7.56**
Specific communication skills	7.64 (0.73)	6.03 (1.20)	7.56**

** $p < .01$.

A multiple linear regression analysis was performed to know what percentage of the variance of the students' final grades is explained by the use of these active learning methods in this course. To decide which variables to include in the regression equation, which would allow getting a better fit, we performed a stepwise regression analysis, using the method of successive steps. The linear regression analysis shows that the three active learning methods used (troubleshooting, basic communication skills, and specific communication skills) to promote the acquisition of cross-curricular skills were predictive of the final grade. The model explained 87% of the final grade of the students (Table 5).

Table 5
Multiple linear regression analysis (stepwise) considering these methods as predictors of the final grade

Model	Adjusted R^2	F	p
Problems solution	.80	541.9	.00
Communication skills problems solutions	.84	374.5	.00
Solution problems concept maps	.87	306.9	.00

Discussion

The convergence process establishes the need for active strategies and learning methodologies in order to develop in students the ability of autonomous learning and cooperation in the knowledge society, information and new technologies. In this sense, according to the data, these strategies and learning skills help foster the acquisition of general and specific skills training related to ethical values that are relevant in the professional world.

Values and attitudes are learned predispositions that help people act in a certain way and also one of the main determinants of the individual behavior. In this paper learning is a priority for the 21st Century University, as a place not only for acquiring knowledge and intellectual skills but also where you acquire and modify values and attitudes through positive or negative experiences, in the interaction with teachers and peers. The assessment of values of solidarity and social justice is particularly relevant due to the formulation within the European education model of new powers for college students in the current grade securities, which are useful for assessing the acquisition of social and civic competences in the university (Escamez, Martinez, & Ortega, 2005; Rios & Ruiz, 2011; Touriñán, 2008).

Considering the importance of a program of training in values and ethics of solidarity that adds to the university curriculum (educational innovation program, PIE10-127), we performed a comparative study of ethical issues in college students before and after the application of the program and an evaluation of effectiveness of different active methodologies to promote solidarity skills acquisition and its impact on performance. One objective of this study has been to contribute with an analysis of moral values and attitudes in a postgraduate student sample as well as to carry out an assessment of the impact and satisfaction reported by students in relation to these educational activities for solidarity. Activities are framed by the innovative educational program "Cross-curricular Education for Solidarity." As a background for the study, the structure and main features of this program are presented as follows.

With respect to the objective of evaluating ethical values before and after the implementation of the program, the results indicate statistically significant differences before and after the implementation of the program of ethical and solidarity training between the total score of values of social justice and solidarity and facilitation of social climate, the total test score of securities and empathy, and prosocial factors. These results are consistent with other research that found an association between training in ethics and solidarity and a higher score on values of justice and solidarity, improved social climate, empathy, and self prosociality (Roche, 1995; Touriñán, 2008). This research found that one of the most effective ways to inhibit violent and aggressive behavior is to equip individuals with values and codes of ethical values and positive behaviors such as cooperation and solidarity that are functional in achieving personal and social goals. It has also been shown (Casares, 2008; Gervilla, 2000; Lara, 2001; Madriaza, 2008; Roche, 1995) that learners of this type of values and attitudes in favor of solidarity and social justice and for the resolution of aggressiveness and conflicts contribute to improving living and classroom climate in our institutions and schools. This result is also consistent with the findings in our study.

The New Model of Higher Education involves new methodologies, requirements and challenges, where attitudinal competences are one of the very basic and main competences to be promoted. Nowadays, volunteering, solidarity, and interests in analysing social values in young people are aspects immersed in a context of accelerated development within the academic field (Moral, 2011; Pereira, 2003). University students can actually become one of the most important groups to develop educational activities for solidarity. Education in values such as solidarity needs to become the guiding principle of every educational process, focusing on students' comprehensive education, promoting ethical values and attitudes and showing, in educational programs as well as in daily life, compliance with ethical and socially desirable values (Trianes & Fernández, 2001). In relation to this, the results of this study also show that this is a feasible project. In fact, a number of daily solidarity actions have already been carried out and have been applied in a truly practical way, benefiting the university community and its surroundings. What is more, students have already suggested and

designed (with the supervision of their teachers) a substantial amount of solidarity acts, such as a successful Solidarity Concert, a exhibition on solidary photography and a film made by a group of postgraduate students. The film relied on the collaboration of the University's Centre for Initiatives at the University of Malaga and the Department of Education, and the Department of Education, Innovation and Science of the Regional Government of Andalusia. It is gratifying to observe how students have moved from a purely theoretical context, where a number of educational activities for solidarity were carried out in class, to the realm of truly practical applications within society.

In the university context, the teaching-learning process focuses on the acquisition and/or development of competencies, understood as a complex expertise that requires a set of knowledge, skills, values, and attitudes that ensure the efficiency of a responsible professional and excellence (Lasnier, 2000). Hence, the roles of teachers are not just about being a good researcher but also an expert in the design, development, analysis and evaluation of educational practice. In that sense, these strategies and active learning methodologies developed in this experience contribute to enhance procedures and transversal skills such as social competence, communication skills, and organization, raising the possibility of forming teachers and students and encouraging independent and collaborative learning. They also allow more effective feedback and a continuous exchange of information.

It may be noted that the innovative strategies used in this program to promote the acquisition of skills and ethical solidarity share basic features such as the increased activation and involvement of students in learning, a greater degree of autonomy and responsibility in the construction of their learning, learning more functionality from posing problems, real or suspected cases in professional, ethical values that enhance solidarity and involving university, and the need for teamwork, communication and collaboration among its members.

However, it can be concluded that, in this experiment, the "problem based learning" has become a very useful tool to have a positive impact on academic performance of students in these matters (which have worked in solidarity cutting content) and achieve a high level of motivation and student participation. This result is consistent with other studies that find a differential efficiency in the preferential use of some strategies in the overall performance of students and performance prediction (Fidalgo, Arias-Gundín, & Garcia, 2008). It is considered that, as presented by these authors, the most effective and positive impact of PBL on student performance may be related to the fact that this method demands more involvement and autonomy of students, encourages critical thinking, skills troubleshooting, creative discussions, and self-managed learning, identifies their own learning needs and systematization and integration of the wide variety of knowledge and the related ethical values and professional ethics.

In the process of European convergence, it is necessary, as proposed in this study, the designing and evaluation of strategies to develop transferable skills in students and to assess the effectiveness and impact of different strategies on the academic performance of students, especially not only to evaluate the acquisition of knowledge but also of procedures, values, and attitudes. However, as a suggestion for improvement, the need arises for future studies with more specific performance indicators in line with the three basic dimensions underlying the competence approach, related not only to knowledge but also to the expertise and knowledge.

If we make a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) of this program, one of the strengths and opportunities is related to the high degree of student satisfaction (as reflected in the qualitative ratings and reviews) as true stars of the teaching/learning according to the European Higher Education Area. The students perceived the usefulness of professional and practical applications of these activities. Besides being necessary for student training, the results show that the use of problem-based learning, mapping or conceptual frames, and the development of cutting oral solidarity positively impact students' academic performance. Most university students participating in the study were satisfied also with the educational solidarity activities carried out.

This study argues that we must work out values such as honesty, civility, non-violence, and solidarity at college level. Citizenship education is not only typical of compulsory education levels prior to the University. Citizenship is learned per se, without having an explicit education in values. Ethics training and a full life from a personal standpoint and community capacity to cope with reasoned solutions, complex personal and social situations, require an adequate, planned, and systematic educational practice and other elements of character training. At a time when the University has to take on more social responsibility than ever, it is necessary to continue providing continuity and extension of such programs in time, also feasible in terms of cost/benefit, effectiveness, and efficiency; it is necessary to foster transversal competences such as digital competence and social and citizenship competences. These approaches are consistent with those from other studies (Benitez, 2009; García Garrido, 2008; López-Barajas & Ruiz, 2000; Martinez, Buxarrais, & Esteban, 2002; Martinez & Esteban, 2005; Vilanou & Colleldemont, 2000) that advocate a university training model that integrates ethical learning. For this type of learning ethical approach in student-centered university education, learning and competency with the use of these active methodologies seem very successful. Also, the data obtained in this study are relevant in order to improve the quality of teaching in these subjects in the European Higher Education Area. In this experiment the teacher is no longer a mere transmitter of scientific knowledge and the students begin to acquire a more active role.

With regards to the limitations of the present study, the use of more robust multivariate analyses is recommended for future studies to reach more accurate and reliable conclusions. It would also be advisable for future studies to analyse the associations between the values and attitudes assessed on the one hand, and other variables such as self-concept and psychological welfare on the other hand.

In spite of such limitations, studies like the present one are relevant for an early identification and assessment of interests and attitudes towards moral issues in view of a comprehensive education aimed to improve social coexistence. Such an assessment will also allow for the design of an educational programme and activities that will contribute to the acquisition of cross-curricular competences, such as social and citizenship competences. In the current European convergence process, which emphasizes the promotion of social and civic skills in college and in a society where there are many aggressive and competitive models, both researchers and education leaders, politicians and social agents are discovering the importance of evaluating these variables related to solidarity and social justice by providing a potential optimization to face a more harmonious coexistence, and an adjusted and preventive mental health value to the particular person, under strong pressure from society, not always easy to stand, and the promotion of spontaneous and healthy behaviors.

Conflicts of interest

The author of this article declares no conflicts of interest.

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