

Four years of a Spanish training experience in problem-based learning

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Introduction. The adoption of problem-based learning (PBL) methods in postgraduate training centres is fundamental in the context of European Higher Education. In an attempt to promote PBL, our institution organized several seminars in a number of Spanish cities. This study presents the experience of four years of running these courses (2008-2011), which were offered in collaboration with other institutions.

Subjects and Method. Data were analyzed from 11 PBL courses involving 216 professionals, 46 of them (21%) from Colleges of Pharmacy. Firstly, satisfaction data were taken from a printed survey conducted at the end of each course. Secondly, additional data were obtained from a deferred opinion questionnaire sent by email. Both questionnaires consisted of several open questions and some parameters to be rated on a Likert-type scale from 0 to 5.

Results. Satisfaction data for 194 attendees who completed the first questionnaire (response rate of 89.8%) were very positive (median=4 out of 5). On the other hand, only 54 attendees (response rate of 25.3%) responded to the second questionnaire. Participants improved their knowledge, attitude, and skills (median increase = 3 out of 5) in most of the parameters evaluated. Furthermore, after completion of the course 38.9% of the attendees were capable of implementing PBL in some of their teaching activities. Class sizes, problems arising from an adverse environment to PBL and the resistance of other professors seem to be the main barriers in overcoming the proper implementation of PBL.

Conclusions. The courses were well received and contributed to the overall learning of the attendees. The questionnaire also served to highlight some of the major problems in the implementation of PBL.



FOUR YEARS OF TRAINING IN PROBLEM-BASED LEARNING IN SPAIN



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INTRODUCTION

Problem-based learning (PBL) is a teaching methodology that is based on the guidelines contained in the European Higher Education Area and the Bologna Process [1]. PBL is founded on a teaching and learning process that is intended to facilitate the development of competences to help students manage their learning more autonomously. This process places an emphasis on self-directed learning where the student is the protagonist rather than merely a passive receptor of education provided by a teacher [2].

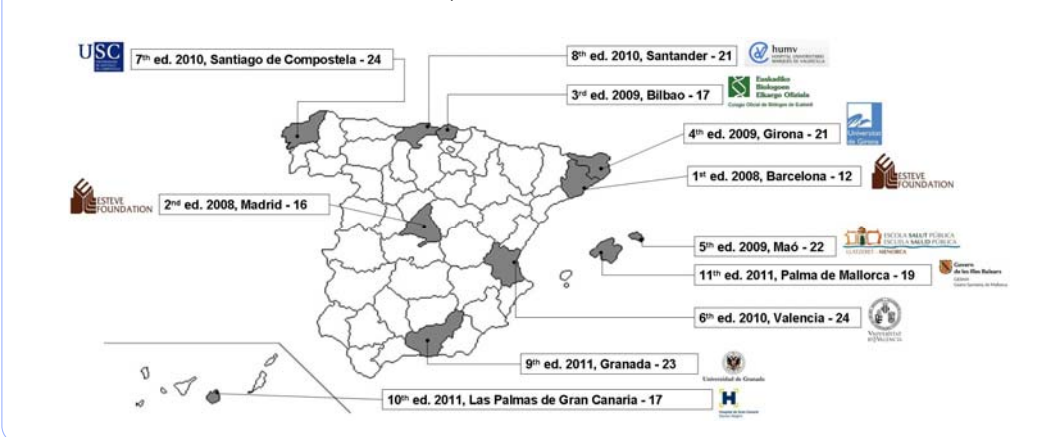
In recent years, a number of training initiatives on PBL have been launched in Spain to provide alternative methods to the traditional university teaching.

Nevertheless, the limited extent of this training cannot be considered entirely satisfactory given that there is widespread demand for training in PBL [3].

In an attempt to promote training in PBL, the Esteve Foundation ran eleven editions of the workshop "Training seminars on teaching methods: problem-based learning". They were given in several cities all over Spain and in collaboration with other academic and clinical institutions (Figure 1).

This study presents the experience of four years of running these workshops (2008-2011), in terms of two questionnaires about participants' satisfaction with the course and their opinion of the training.

FIGURE 1. Location of all eleven editions of the workshop.



A total of 216 people attended the 11 editions of the PBL workshops, comprising 147 women (68.1%) and 69 men (31.9%). Each label includes information on the year and city where it was held, the number of participants, as well as the collaborating institution.

SUBJECTS AND METHODS

Data were analyzed from 11 PBL workshops involving a total of 216 professionals. Most of them were medical doctors and pharmacists (Table 1). Firstly, satisfaction data were obtained from a printed opinion questionnaire conducted at the end of each workshop. Secondly, a deferred questionnaire sent by e-mail (August 2011) asked if participation in the course had led to an improvement in knowledge, attitudes, and skills in their daily work. Other questions were aimed at soliciting their opinion on the need for such courses.

Both questionnaires consisted of some open questions and several parameters to be rated on a Likert-type scale from 0 (minimum) to 5 (maximum).

Data were processed using the statistical package SigmaPlot® (Systat Software Inc., Chicago, IL, USA). For the presentation of the results, mean, median, ranges and standard deviation were calculated. Data were presented as box-plots.

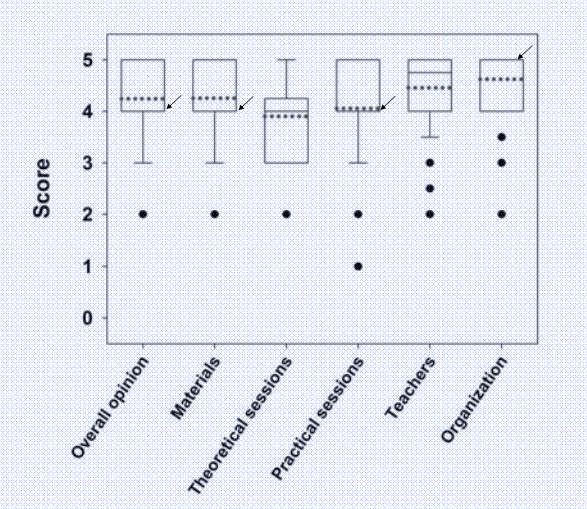
TABLE 1. Main characteristics of the workshop participants and those that answered the deferred questionnaire.

		Participants (n=216)*		Deferred questionnaire (n=54)	
		n	%	n	%
Sex	Female	147	68.1	34	63.0
	Male	69	31.9	20	37.0
Education	Medicine	83	38.4	14	25.9
	Pharmacy	46	21.3	20	37.0
	Nursing	41	19.0	9	16.7
	Biology	23	10.6	2	3.7
	Chemistry	10	4.6	0	0
	Social worker	4	1.8	1	1.8
	Science	3	1.4	1	1.8
	Informatics	2	0.9	1	1.8
	Other	4	1.8	6	11.1
	Working place	University	104	48.1	26
Hospital		84	37.5	14	26.0
Primary care		11	5.1	1	1.8
Other		20	9.3	13	24.1

*A total of 194 people (89.8%) answered the opinion questionnaire.

RESULTS

FIGURE 2. Satisfaction data obtained from the opinion questionnaire.



A total of 194 attendees (89.9% participation) from the 11 editions completed the opinion questionnaire.

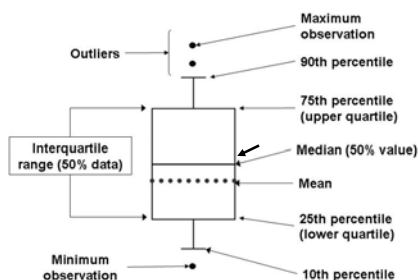
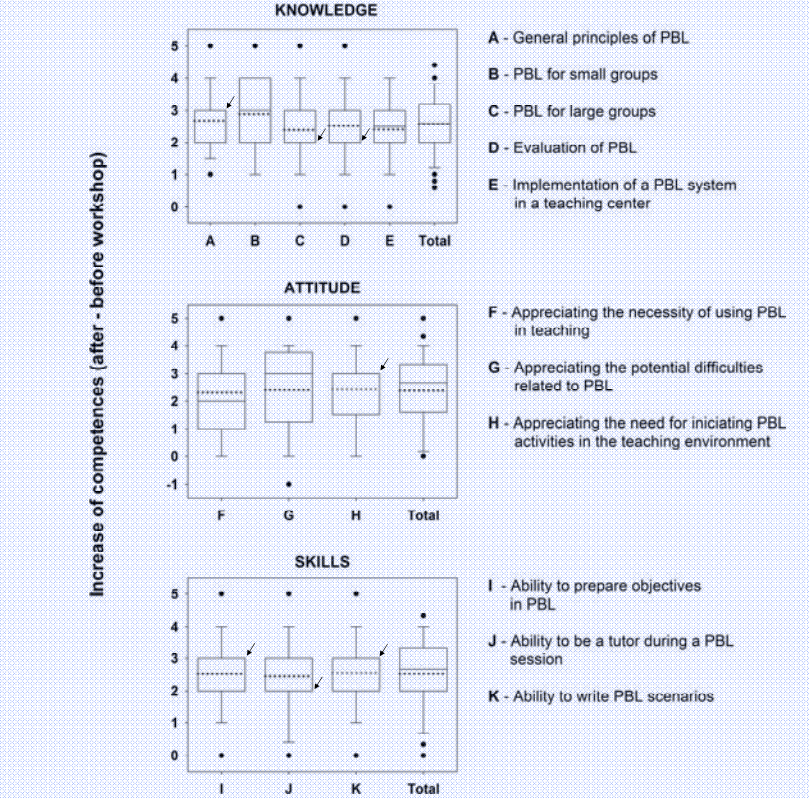


FIGURE 3. Increase in PBL competences (knowledge, attitude and skills) according to the deferred questionnaire.



A total of 54 deferred questionnaires (25.5%, response rate) out of 216 attendees were received.

TABLE 2. Main limitations in applying PBL in teaching and professional environments according to the deferred questionnaire.

	n
Excessive number of students per course	12
Lack of tradition, willingness and coordination with other teachers	11
Inadequate infrastructure	7
Insufficient time to prepare the new PBL methodology and apply it	5
Lack of experience and training	5
Student's reluctance	2
Difficulty of evaluation in PBL	2
The need to rethink and write new objectives	1

A total of 21 attendees (38.9%) who answered the deferred questionnaire had applied the PBL method after completion of the workshop. Most of them (36, 66.7%) affirmed they could apply some aspects of the newly learned PBL methodology in their daily teaching activity, but 9 (16.7%) of the participants could not do it because they had not had teaching duties since the workshop.

According to the attendees, PBL training courses are necessary in teaching centers in hospitals, schools and universities – they gave it a mean of 4.4 out of 5 (SD=0.9, median 5, range 1-5). They would also positively recommend the PBL workshop (mean 4.4 out of 5, SD=1.1, median 5, range 2-5).

CONCLUSIONS

1. PBL workshops were well received and contributed to an overall increase in competences (knowledge, attitudes and skills) of the attendees.
2. Participants considered their large class sizes as being one of the major obstacles for PBL implementation.
3. Prior to the workshop, most participants did not use PBL in their teaching activities. After the workshop, a majority of them introduced some aspects of PBL into their daily teaching activity.
4. There is a need for PBL training workshops in teaching centres in hospitals, schools and universities.

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