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Transformation in economic studies via problem-based learning: facing fears to acquire professional skills

Over the last 40 years, the learning process in university studies has gradually shifted from a teacher-centered approach to a student-centered approach. Economic and Business studies are a suitable sector for active teaching-methodologies such as Problem-Based Learning (PBL) and it is becoming popular in business programs. Nevertheless, they cause students stress. The aim of this work is to study the fears that PBL produces in students and the perception whether it is worthwhile to overcome them in view of their professional development. It is applied to a Faculty of Economics and Business in order to detect the main factors that influence the success of PBL. One of the conclusions is that the main cause that hinders PBL materialization is the difficulty that students find in making their opinions known in classroom. So, it is necessary to offer teachers educational programs for learning emotional methods to face those fears to successfully develop PBL among students,

Keywords: Learning-Innovation; Problem-Based Learning; Students´ fears; Economist skills

JEL: A11; A13; A23

1. Introduction

Over the last 40 years, the learning process has gradually shifted from a teacher-centered approach to a student-centered approach. This perspective has placed an increasing responsibility on learners for their own learning. As a result, they become aware of conceptual relations or describe learning as a process of conceptual refinement, and they construct their own conceptualizations and solutions to problems. Hence, students should not depend on teachers to learn; instead, they should be independent learners throughout their lives. In addition, in their daily life, people expend great intellectual effort in solving problems, and so it should be central to education (Vanderbilt, 1990; Vye et al., 1997; Schaafstal et al., 2001; Middleton, 2002).

In this change from a teacher-centered approach to a student-centered approach, research has shown problem-based learning (PBL) to be an effective method of learning in many ways (Derry, Siegel, & Stampen, 2002; Dods, 1997; Gallagher & Stepien, 1996; Hmelo, 1998; Hmelo et al., 1995; Schmidt et al., 1996). PBL has been studied extensively with mature learners, and a few papers have discussed the merits of implementing PBL in college accounting classrooms (Dockter, 2012; Hansen, 2006; Milne & McConnell, 2001; Stanley & Marsden, 2012).

By contrast, currently, there is little research about students' fears when changing from a teacher-centered to a student-centered methodology such as problem-based learning (PBL). Only, Forés et al., 2014 and Corral-Lage, et al., 2015 have pointed out any fears such as fear of not knowing what is really being asked in the classroom, uncertainty about a new way of working or fear of having insufficient skills to study. However, no study has analysed the perception of the contributions obtained from students after the implementation of active methodologies in the classroom. We contribute to the literature pointing out professional skills such as autonomy, empathy, proactivity and enthusiasm are obtained by students after using PBL.

As PBL, understood as a type of active education, is becoming increasingly popular in economics and business programs, we focus on understanding students' fears in their classrooms. In an active education, there is evidence of a change of learning methodology and this challenger

increases student anxiety (Pepper, 2010), and this increased anxiety is especially evident in those students for whom the traditional model has served well in the past: those with high grade point averages (Peterson, 2004). No research has been conducted to date that has focused specifically on how students must face theirs fears and change their attitude to successfully develop PBL.

Accordingly, the aim of this paper is to study the fears that PBL produces in students and the perception whether it is worthwhile to overcome them in view of their professional development. Concretely, this study empirically analyses, on the one hand, the fears, reticence and uncertainties that influence the degree of general satisfaction based on fear reduction according to the application of active methodologies. On the other hand, which contributions contribute to the degree of general satisfaction on the basis of the contributions obtained after the application of active methodologies. This study contributes to previous literature on the above cited lines of research by analysing different fears, reticence and uncertainties of students when an active methodology is used in class. Our findings show those fears to successfully develop PBL among students.

Multiple linear regression models are estimated by using a sample of 194 students (109 female and 85 male) in their third year of Business Administration Degree at the UPV/EHU, over the academic year 2017/18 within accounting subjects related into the Specialty of Accounting Management and Financial Information. The results suggest that fears related to not knowing what is being asked, fears related to new ways of working and fear of not having sufficient skills to deal with the subjects influence the degree of general satisfaction. Besides, autonomy, understood as the ability to learn by oneself, empathy among students, proactivity in class and enthusiasm for the subject explain the degree of general satisfaction. Even more, this study concludes that student confronts and overcomes their fears of implementing an active methodology based on PBL and they consider it a positive for their professional life.

The rest of the study is structured as follows: in section two a PBL review is carried out, indicating the obstacles that students can encounter when trying to achieve the skills required for the area of economic studies. The third section develops the methodology that allows these factors to be contrasted, as well as evaluates the contributions of active methodologies. The following section presents the results of a study carried out in Bilbao, Spain, at the Faculty of Economics and Business and ends with the conclusions and references used.

2. Transformation in business studies

2.1. Education looking towards the real world

Researchers have indicated that a classical education in Economics and Business studies does not prepare students for the realities of business life (Bovinet, 2000; Jauch et al., 2000; Olian et al., 2002; Bailey et al., 2005; Hilton, 2015). Business leaders have voiced concern that new graduates are not equipped for the ambiguity and group dynamics of evolving decentralized organizations (Corsini et al., 2000; Hamilton et al., 2000; Hartenian et al., 2001; Markulis et al., 2004).

An education in Business studies does not provide students with the learning skills needed to be excellent in the workplace. Bovinet (2000) observed that while students may demonstrate competence in theoretical courses, they are often ineffective when dealing with the ambiguity and rigor of the working world. Sometimes it is argued that students carry little competence and knowledge from college to the workplace (Jauch et al., 2000; Benson, and Filippaios, 2015). Clearly, there is a disconnection between what is convenient for an education in Business studies and what the needs of the student are (Karimi et al., 2016). Students learn quantitative concepts and theories rarely used in business practice. According to Bailey et al. (2005), newly hired graduates are technically proficient; however, "*they display limited self-awareness, leadership, interpersonal communication, and conflict management skills*".

Several Economic studies subjects specialize students with a thorough grounding in their respective disciplines. This is a "*silo*" mentality (Hartenian et al., 2001) where students become technically efficient within their discipline but never learn to effectively share and integrate discipline-specific knowledge (Corsini et al., 2000; Blanco-Portela et al., 2017). It is characteristic of traditional learning approaches, which are considered to be large-class, instructor-driven, lecture-based deliveries within a curriculum, which compartmentalize the content (Barrows, 2002; Savery, 2015) and standardize tests that measure knowledge of basic science focusing on short-term acquisition and retention (Seman et al., 2018).

Both learning methodologies are used in Economics and Business studies, and when the learning methodology changes from traditional instruction to a problem-based learning approach, there are three critical success factors (Peterson, 2004; Martyn et al., 2014): orienting the students; picking the problem; and forming the team.

2.2.PBL: changing roles

In contrast to traditional learning methods, PBL teachers assume the role of coach rather than the transmitter of knowledge. At times, the PBL process may have to be adapted to support different types of problem solving at different levels of difficulty (Jonassen and Hung, 2015). Therefore, the teacher's role in implementing this methodology in the classroom is fundamental (Hendry, Wiggins and Anderson, 2016). With professor guidance, students choose authentic problems or challenges, conduct research, and work collaboratively on solutions for real audiences over an extended period of time (Thomas, 2000; Savery, 2006; Barron and Darling-Hammond, 2008; Pease and Kuhn, 2011). The curriculum is not divided into individual subjects, which allows students to develop multidisciplinary skills, learning and applying their knowledge where they need it (Papert, 2001; Stukalina, 2008). A key element in PBL is student attitude (Diggs, 1997; Tosun, and Taskesenligil,

2011). They exhibit increased motivation by planning their own learning and organizing their own research in solving real-world problems (Bell, 2010).

The concept of PBL is simple. Rather than being taught through lectures, teams of students are engaged in solving relevant unstructured problems. Instead of being given a complete problem statement, "*Students are expected to define problems, identify related gaps in their knowledge, collect relevant information, and propose solutions … Instructors advise student problem-solving teams, offering suggestions and direction when needed*" (Smith, 2005:358).

In a rapidly growing, computerized, and information-rich world, by this process, students develop these skills that are basic and necessary for the 21st century (Salinitri et al., 2015), such as the ability to frame, investigate, and solve problems; to acquire and evaluate information; to collaborate effectively with others; to work with a variety of technologies; and to develop new ideas and products (Bell, 2010; Darling-Hammond, 2010; Wagner, 2012; Zhao, 2012). All these skills are independent of the knowledge in which they are applied.

Additionally, students acquire knowledge when they are engaged in their learning and when they can apply what they are learning to the real world. They believe in themselves and in their own abilities and they will persist in the face of obstacles (Farrington, 2013; Dweck et al., 2014).

PBL has been applied globally in a variety of professional schools (Boud and Feletti, 1991; Gijselaers et al., 1995; Wilkerson and Gijselaers, 1996) as a design methodology for teaching in domains like medicine, engineering, science and economics. Furthermore, the types of problems used in PBL vary from one area to another, depending upon the nature of the discipline, but in Business Administration (Merchand, 1995; Bridges and Hallinger, 1995; 1996; Cunningham and Cordeiro, 2003) the principal focus is on decision-making and policy analysis problems.

In all disciplines, students act as professionals and have to solve problems that require them to (i) clearly define an ill-structured problem (Ge, Law, and Huang, 2016); (ii) develop hypotheses (Salinitri et al., 2015); (iii) access, analyse, and use data from different sources (Hung, 2016); (iv)

revise the initial hypothesis as data is collected (Chen et al., 2017); (v) develop and justify solutions according to evidence and reasoning (Barrows, 1986; Gallagher et al., 1995; Malone, 2017).

2.3.Literature review

PBL is an inquiry-based learning method that is based on constructivist philosophy (Biggs, 1996; Hendry et al., 1999), particularly the work of Vygotsky, Dewey and Piaget (Vygotsky, 1962; Ginsburg and Opper, 1987; Dewey, 1997). Inquiry learning involves creating questions, doing research to address the questions, analysing and interpreting the data, and coming up with possible solutions (Bell et al., 2010; Wilhelm and Wilhelm, 2010).

This learning strategy is a student-centered learning approach (Wright, 2011) and learning occurs within small groups working collaboratively to seek solutions (Willis et al., 2002; Dolmans, and Schmidt, 2006; Mergendoller et al., 2006; Yuan et al., 2008; Barrett and Moore, 2010). There are now increasing number of experimental studies that provide evidence of the superior performance of students learning in PBL conditions as opposed to lecture conditions (Strobel and Van Barneveld, 2009; Pourshanazari, Roohbakhsh, Khazaei and Tajadini, 2013; Yew and Goh, 2016).

It is undoubted that PBL poses challenges for both teachers and students as their roles and responsibilities differ from those in a classroom in which direct teaching strategies predominate (Ertmer and Simons, 2006; Pecore, 2012; Bradley-Levine and Mosier, 2014).

Results of research on PBL reveals that it creates an environment in which students (i) participate actively in the learning process (Genn, and Harden, 1986; Smith, 2001) showing better long-term retention and ability to apply new material (Wirkala and Kuhn, 2011); (ii) take responsibility for their own learning, seeing the relevance of their learning (Malik, and Malik, 2011), and (iii) become better learners in terms of time-management skills and ability to define topics (Malik, and Malik, 2011). These students are able to access different resources and evaluate the validity of these resources (Gallagher et al. 1995; Krynock and Robb, 1996).

Moreover, PBL appears to improve critical thinking, promoting deep learning (Bligh, 1998), communication, mutual respect, teamwork (Davis and Harden, 1999; Malik and Malik, 2011), and interpersonal skills. It increases students' interest in a course, thus motivating them to identify their own learning needs (West, 1992; Savoie and Hughes, 1994; Achilles and Hoover, 1996; Sage, 1996; Gordon et al., 2001; McBroom and McBroom, 2001; Malik and Malik, 2011).

It seems, however, that many of these educational strategies and interventions, such as problem-based learning or games, are less frequently used in accounting education as case studies have been the primary teaching strategy in accounting education for many years (Hassall & Milne, 2004; Knyvienė, 2014). The literature likewise indicates a limited use of problem-based learning in accounting education (Milne & McConnell, 2001; Stanley & Marsden, 2012; Heagy & Lehmann, 2015). Even more, it seems that educators in the accounting and auditing profession are slow to adopt educational technologies in their teaching practices (Watty, McKay & Ngo, 2016). Traditional lecturing remains the predominant method of teaching auditing at higher education institutions (De Villiers, 2015) although there is evidence of the superior performance of students learning in PBL conditions as opposed to lecture conditions (Strobel and Van Barneveld, 2009; Pourshanazari, Roohbakhsh, Khazaei and Tajadini, 2013; Yew and Goh, 2016).

According to Peterson (2004), the three critical success factors for PBL based courses are orienting the students, picking the problem, and forming the team. Problem-based learning is a highly non-traditional instructional strategy. Students are used to, and hence comfortable with, the standard read the book, attend the lecture, memorize the facts, and take the exam approach. As such, any deviation from this norm will greatly increase student anxiety. This increased anxiety is especially evident in those students for whom the traditional model has served well in the past: those with high grade point averages.

Currently, there is little research about students' fears when changing from a teacher-centered methodology to a PBL methodology. Xie and Johns, (1995) and Peterson, (2004) indicate

that some level of anxiety and stress improves performance; however, there appears to be an anxiety level where students become anxious, uncertain, and agitated and their performance deteriorates (Pepper, 2010).

This anxiety provokes fears that make it difficult for students to leave their comfort zone in the face of new active methodologies. Specifically, fear of not knowing what is really being asked in the classroom; uncertainty about a new way of working; fear of having insufficient skills to study; reluctance to give an opinion; uncertainty about the time to invest inside and outside the classroom; fear of a lack of a script to know how to act and determine how much to study following active learning or uncertainty about the value attached to the effort (Forés et al., 2014; Corral-Lage, et al., 2015).

It is here where our work focuses on analysing students' fears before PBL and also, whether students believe that overcoming their fears benefits the development of their professional profile.

In order to define the profile demanded of the student by the business sector, professional competences studies carried out in Spain are used (Arriaga and Conde, 2009; Carrasco et al., 2009; Casanovas et al., 2009; Marín et al., 2008; Periáñez et al., 2009; Luengo and Periáñez, 2014). All of them conclude that the graduate should be proactive and self-critical as well as have autonomy, empathy, self-esteem and enthusiasm as competencies that should contribute to the job (Eliecer and Herrera, 2016).

3. Methodology

3.1. The role of the lecturer

During PBL activities, students are confronted with a complex real world problem for which there is no definite answer. They worked in groups or individually identifying what they need to learn in order to solve the problem. The lecturer facilitates learning by providing scaffolding, modelling a positive attitude towards an uncertain, open-ended process and providing feedback (Schmidt et al.

2011). In addition to the uncertainty related to content, experienced knowledge uncertainty could also be due to procedural or task ambiguity and complexity.

Lecturer is not only focused on technical and theoretical aspects of accounting practices, but also on encouraging students by themselves to use new technologies to be informed about the requirements of their roles and how that should be fulfilled now and in the future. The lecturer is aware that managerial accounting jobs are changing rapidly and are based on new information technology and problem solving in situations of great risk, uncertainty and political, economic and social instability. Therefore, the lecturer try to help students coping with their insecurities in classroom. So, the role played by the lecturer during the development of the lecture is facilitator of learning, leading discussions, asking open-ended questions and guiding.

3.2.Data collection

The University of the Basque Country (UPV/EHU) is a regional state university in the north of Spain that promotes changing the learning process to PBL. The Degree in Business Administration and Management (ADE) of the Faculty of Economics and Business (FEE) has been replacing traditional methodology with active methodologies, such as the PBL, where students participate in class, work in groups, solve problems individually and/or collectively, review regulations, etc. However, on certain occasions the transition from one methodology to another can generate resistance (fear and uncertainty before the implementation of new active methodologies in the classroom).

In order to test the resistance, a questionnaire was tested with 194 students (109 female and 85 male) in their third year of Business Administration Degree at the UPV/EHU, who had accumulated three years of teaching experience. The data was taken during the academic year 2017/18 within accounting subjects related into the Specialty of Accounting Management and Financial Information.

Additionally, in order to analyse the disaggregated information in future studies, the language in which the students were taught (Spanish or Basque) was asked. Part of the activities carried out in the subjects where the PBL is developed are related to the regulations that affect companies, which are only published in Spanish, making it difficult to carry out activities with this methodology. Therefore, it could be interesting to know whether students who study in Basque perceive the PBL method as those who receive it in Spanish.

On the other hand, the questionnaire also asked about the shift in which the students receive the teaching. The selection system is based on the mark obtained in the previous year, so that students with higher marks are in morning groups and vice versa. In future studies, it will be interesting to see if the level of previous knowledge influences the level of satisfaction with respect to the PBL.

Finally, the questionnaire investigates whether the students are working or not, and whether it is half or full journey. With the future objective of analysing if the implementation of the knowledge acquired in the university in the working world, influences at the time of perceiving as satisfactory or o the PBL and to reduce the fears that are had in the classroom (table 1).

Table 1. Descriptive statistics: Sample frequencies (Source: Own Work)

		Frequency	Percentage	Valid Percentage	Cumulative percentage
GENDER	MALE	85	43,8	43,8	43,8
	FEMALE	109	56,2	56,2	100,0
	Students	194	100,0	100,0	
LANGUAGE	SPANISH	152	78,4	78,4	78,4
	BASQUE	42	21,6	21,6	100,0
	Students	194	100,0	100,0	
SHIFT	MORNING	128	66,0	66,0	66,0
	AFTERNOON	66	34,0	34,0	100,0
	Students	194	100,0	100,0	
DEGREE	Business Administration	177	91,2	91,2	91,2
	Business and Law	17	8,8	8,8	100,0
	Students	194	100,0	100,0	
WORKING	YES	60	30,9	30,9	30,9
	NO	134	69,1	69,1	100,0
	Students	194	100,0	100,0	
JOB	ALL JOURNEY	20	10,3	33,3	33,3
	HALF JOURNEY	40	20,6	66,7	100,0
	Sub-Total	60	30,9	100,0	
*Without job	Sub-Total	134	69,1		
	Students	194	100	100,0	

The questionnaire measures students' fears, reticence and uncertainties prior to the implementation of active methodologies in the classroom. The teaching staff in each subject studied proposed these methodologies. Specifically, it was analysed the relationship and degree of association between general satisfaction, on the basis of the reduction of fears and uncertainties, according to the application of active methodologies "SATISF_M". The explanatory or dependent variables that are defined are as follows (the Likert psychometric scale from 1 to 5 is used for all of them):

M1 : Fear of not knowing what the teacher is really asking in the classroom during any type of activity, such as debates, seminars, sharing, among others.

M2 : Uncertainty about a new way of working in class, not knowing how to deal with it.

M3 : Fear of not having the aptitude to study and follow active methodologies.

M4 : Reluctance to give an opinion, thus avoiding making a fool of oneself before one's peers.

M5 : Uncertainty about the time to be invested inside and outside the classroom, since the new active methodologies imply new activities that the students have not faced, and therefore, they have no knowledge of the real time that they will have to invest to invest to complete their work.

M6 : Fear of a lack of a script given by the teachers so the students know how to act and how to determine the amount of study required following active learning, which generates disorientation in the students because they have no guidelines to follow during the learning process.

M7 : Uncertainty about the final evaluation of the effort; the qualification.

The regression model results:

$$SATISF\_M \quad = \alpha + \sum_{h=1}^{7} \beta_h \cdot M_h + \varepsilon \qquad (1)$$

Where,

β_h : Partial relationship of each h-th explanatory variable with the explained variable.

The purpose of PBL is to provide the student with a series of skills that may be useful in the labor market, so it also analyses *the perception of the contributions obtained* from students after the implementation of active methodologies in the classroom. Specifically, the relationship and degree of association *between general satisfaction based on the contributions obtained after the application of active methodologies* "SATISF_A".

The defined explanatory variables are (the Likert psychometric scale from 1 to 5 is used for all, and the objective is to measure):

A1 : Autonomy, understood as the ability to learn by oneself.

A2 : Empathy, students learn to take into account and respect the opinions of others, thus broadening their points of view.

A3 : Self-criticism, conceived as a process in which students begin to question themselves and to be critical of what they currently know and of what they will learn in the subjects.

A4 : Proactivity, perceived as the attitude to continue expanding knowledge of the subjects learned, to take freely own initiative in the development of actions for improvement.

A5 : Self-esteem, explained as the student's loss of fear of what they will say and of giving an opposing opinion or point of view

A6 : Enthusiasm, the students' learning process is developed with greater emotion, that is to say, one learns and studies more, and with more desire.

Therefore, the resulting linear regression model is:

$$SATISF\_A = \alpha + \sum_{h=1}^{6} \beta_h \cdot A_h + \varepsilon \qquad (2)$$

Where,

β_h : Partial relationship of each h-th explanatory variable with the explained variable.

3.3.Data Analysis

With the support of SPSS Statistics 24 software, step-by-step variables have been selected to address multiple linear regression analysis. The purpose is to search among all the possible explanatory variables "MX" and "AX" for those that more completely and better explain the degrees of satisfaction of the independent variables "SATISF_M" and "SATISF_A" without any being a linear combination of the remaining ones.

In this way, we analyse, on the one hand, the fears, reticence and uncertainties that influence the degree of general satisfaction based on fear reduction according to the application of active methodologies. Thus, the first hypothesis is,

H_0: The fear, reticence or uncertainty "MX" does not affect the degree of general satisfaction based on the reduction of fears according to the application of active methodologies "SATISF_M".

That is $H_0 = \beta X = 0$

On the other hand, we analyse which contributions contribute to the degree of general satisfaction on the basis of the contributions obtained after the application of active methodologies. Thus, the second hypothesis is,

H_0': The contribution "AX" does not affect the degree of general satisfaction based on the contributions obtained after the application of active methodologies "SATISF_A".

That is $H_0' = \beta X' = 0$

4. Results

4.1.Predictive model of the degree of satisfaction based on fears

Through the stepwise regression procedure, and based on the goodness of fit of the data to the multiple linear regression model, it is obtained that the last model proposed (model 3) is the one that obtains a higher multiple correlation coefficient (R) (table 2).

Table 2. Model summary (source: Own work)

Model	R	R^2	Adjusted R^2	Standard error estimation	Change statistics				
					Change in R^2	Change in F	gl1	gl2	Sig. change in F
1	,796[a]	,633	,631	,581	,633	330,947	1	192	,000
2	,819[b]	,671	,667	,552	,038	21,974	1	191	,000
3	,825[c]	,680	,675	,545	,009	5,508	1	190	,020

a. Predictors: (Constant), M2
b. Predictors: (Constant), M2, M1
c. Predictors: (Constant), M2, M1, M3

This corroborates that the fear of not knowing what is asked "M1" (t=-2,725, p<0.05); the uncertainty of a new way of working "M2" (t=-7,037, p<0.05); and the fear of not having enough aptitude "M3" (t=-2,347, p<0.05), explain the independent variable "SATISF_M" in a more intense way, by means of a negative linear association. Likewise, through the determination coefficient (R2), it is observed that the variability explained by the model is 68%, which is very close to the adjusted determination coefficient.

Based on the analysis of variance, the ANOVA contrast (table 3) has been performed, where it is noted that for model 3 (which integrates these three fears) the p-value associated with the statistic F is lower than the level of significance (Sig.) (see table 3).

So, the H0: The fear of not knowing what is being asked, of the new way of working, and of not having enough aptitude ("M1", "M2", and "M3") do not affect the degree of general satisfaction based on the reduction of fears according to the application of active methodologies “SATISF_M".

Table 3. ANOVA[a] (source: Own work)

Model		Sum of squares	gl	Root mean square	F	Sig.
1	Regression	111,711	1	111,711	330,947	,000[b]
	Residuals	64,810	192	,338		
	Total	176,521	193			
2	Regression	118,398	2	59,199	194,536	,000[c]
	Residuals	58,123	191	,304		
	Total	176,521	193			
3	Regression	120,035	3	40,012	134,588	,000[d]
	Residuals	56,485	190	,297		
	Total	176,521	193			

a. Dependent variable: SATISF_M
b. Predictors: (Constant), M2
c. Predictors: (Constant), M2, M1
d. Predictors: (Constant), M2, M1, M3

Therefore, the predictive variables that become part of the equation are the fears "M1", "M2", and "M3" (table 4). On the contrary, the fear of giving an opinion "M4" (t=-1,03; p>0.05)),

the time to invest in study "M5" (t=-1,359; p>0.05), the fear of a lack of script "M6" (t=-0,745; p>0.05), and the fear to the valuation of the effort "M7" (t=-1,493; p>0.05) (table 5) are excluded from the equation (Test statistics in ANNEX: Table 10):

$$Satisfaction\ M = 5{,}338 - 0{,}14M1 - 0{,}446M2 - 0{,}139M3 \qquad (3)$$

Table 4. Coefficients[a] (source: Own work)

Model		Not standardized coefficients		Standardized coefficients	t	Sig.
		B	Standard error	Beta		
1	(Constant)	5,375	,100		53,882	,000
	M2	-,719	,040	-,796	-18,192	,000
2	(Constant)	5,331	,095		55,993	,000
	M2	-,504	,059	-,557	-8,496	,000
	M1	-,205	,044	-,308	-4,688	,000
3	(Constant)	5,338	,094		56,696	,000
	M2	-,446	,063	-,494	-7,037	,000
	M1	-,140	,051	-,210	-2,725	,007
	M3	-,139	,059	-,180	-2,347	,020

a. Dependent variable: SATISF_M

Table 5. Excluded variables[a] (source: Own work)

Model		beta	t	Sig.	Partial correlation	Statistics of collinearity
						Tolerance level
1	M1	-,308[b]	-4,688	,000	-,321	,401
	M3	-,293[b]	-4,461	,000	-,307	,404
	M4	-,196[b]	-3,404	,001	-,239	,548
	M5	-,116[b]	-2,231	,027	-,159	,689
	M6	-,183[b]	-3,057	,003	-,216	,509
	M7	-,158[b]	-3,214	,002	-,227	,759
2	M3	-,180[c]	-2,347	,020	-,168	,287
	M4	-,104[c]	-1,685	,094	-,121	,452
	M5	-,074[c]	-1,452	,148	-,105	,663
	M6	-,072[c]	-1,087	,278	-,079	,398
	M7	-,091[c]	-1,792	,075	-,129	,667
3	M4	-,066[d]	-1,030	,304	-,075	,410
	M5	-,068[d]	-1,359	,176	-,098	,662
	M6	-,049[d]	-,750	,454	-,054	,388
	M7	-,076[d]	-1,493	,137	-,108	,653

a. Dependent variable: SATISF_M
b. Predictors in the model: (Constant), M2
c. Predictors in the model: (Constant), M2, M1
d. Predictors in the model: (Constant), M2, M1, M3

4.2.Predictive model of the degree of satisfaction based on contributions

In this second analysis and in the proposed model (model 4), we observe that the dependent variables Autonomy "A1" (t=2,416, p<0.05), Empathy "A2" (t=3,915, p<0.05), Proactivity "A4" (t=3,944, p<0.05), and Enthusiasm "A6" (t=9,308, p<0.05) explain the independent variable "SATISF_A" in a more intense way (table 6) through a positive linear association, since the

multiple correlation coefficient (R) is the highest.

Table 6. Model summary. (source: Own work)

Model	R	R^2	Adjusted R^2	Standard error estimation	Change statistics				
					Change in R^2	Change in F	gl1	gl2	Sig. Change in F
1	,787[a]	,619	,617	,601	,619	312,173	1	192	,000
2	,828[b]	,686	,682	,547	,066	40,335	1	191	,000
3	,846[c]	,716	,711	,522	,030	20,148	1	190	,000
4	,851[d]	,724	,718	,515	,009	5,838	1	189	,017

a. Predictors: (Constant), A6
b. Predictors: (Constant), A6, A4
c. Predictors: (Constant), A6, A4, A2
d. Predictors: (Constant), A6, A4, A2, A1

In addition, by means of the determination coefficient (R2), it is noticed that the total variation of the independent variable explained by the model is 74%, being 71% if we adjust it through the adjusted determination coefficient (Adjusted R2).

On the other hand, thanks to the ANOVA analysis (table 7) it is observed that for model 4 the level of intra-class significance is less than 0.05; so the *H_0: Autonomy "A1", Empathy "A2", Proactivity "A4", and Enthusiasm "A6" do not affect the degree of general satisfaction based on the contributions obtained after the application of active methodologies "SATISF_A".*

Table 7 ANOVA[a] (source: Own work)

Model		Sum of squares	gl	Root mean square	F	Sig.
1	Regression	112,588	1	112,588	312,173	,000[b]
	Residuals	69,247	192	,361		
	Total	181,835	193			
2	Regression	124,662	2	62,331	208,232	,000[c]
	Residuals	57,173	191	,299		
	Total	181,835	193			
3	Regression	130,144	3	43,381	159,454	,000[d]
	Residuals	51,691	190	,272		
	Total	181,835	193			
4	Regression	131,692	4	32,923	124,095	,000[e]
	Residuals	50,143	189	,265		
	Total	181,835	193			

a. Dependent variable: SATISF_A
b. Predictors: (Constant), A6
c. Predictors: (Constant), A6, A4
d. Predictors: (Constant), A6, A4, A2
e. Predictors: (Constant), A6, A4, A2, A1

In this way, the predictive variables that form part of the equation are Autonomy "A1", Empathy "A2", Proactivity "A4", and Enthusiasm "A6" (table 8); and the Self-critical variables

"A3" (t=1,098; p>0.05) and Self-esteem "A5" (t=1,807; p>0.05) (table 9) are excluded (Test statistics in ANNEX: Table 11):

$$A\ Satisfaction = -0.640 + 0.152A1 + 0.21A2 + 0.217A4 + 0.535A6 \quad (4)$$

Table 8. Coefficients[a] (source: Own work)

Model		Not standardized coefficients		Standardized coefficients	t	Sig.
		B	Standard error	Beta		
1	(Constant)	,423	,191		2,217	,028
	A6	,852	,048	,787	17,668	,000
2	(Constant)	-,082	,191		-,426	,670
	A6	,669	,052	,618	12,743	,000
	A4	,332	,052	,308	6,351	,000
3	(Constant)	-,347	,192		-1,809	,072
	A6	,535	,058	,495	9,189	,000
	A4	,265	,052	,245	5,083	,000
	A2	,243	,054	,240	4,489	,000
4	(Constant)	-,640	,225		-2,846	,005
	A6	,535	,058	,495	9,308	,000
	A4	,217	,055	,201	3,944	,000
	A2	,215	,055	,212	3,915	,000
	A1	,152	,063	,112	2,416	,017

a. Dependent variable: SATISF_A

Table 9. Variables excluded[a] (source: Own work)

Model		beta	t	Sig.	Partial Correlation	Statistics of collinearity.
						Tolerance level
1	A1	,241[b]	5,356	,000	,361	,856
	A2	,319[b]	5,851	,000	,390	,569
	A3	,283[b]	4,638	,000	,318	,480
	A4	,308[b]	6,351	,000	,418	,700
	A5	,330[b]	5,691	,000	,381	,507
2	A1	,152[c]	3,223	,001	,228	,709
	A2	,240[c]	4,489	,000	,310	,521
	A3	,189[c]	3,158	,002	,223	,437
	A5	,233[c]	3,977	,000	,277	,447
3	A1	,112[d]	2,416	,017	,173	,676
	A3	,071[d]	1,040	,300	,075	,317
	A5	,137[d]	2,066	,040	,149	,335
4	A3	,074[e]	1,098	,273	,080	,317
	A5	,119[e]	1,807	,072	,131	,330

a. Dependent variable: SATISF_A
b. Predictors in the model: (Constant), A6
c. Predictors in the model: (Constant), A6, A4
d. Predictors in the model: (Constant), A6, A4, A2
e. Predictors in the model: (Constant), A6, A4, A2, A1

4.3.Discussion

By means of a regression analysis we have located those fears that most influence students. On the basis of these results, universities should focus their efforts on reducing mainly:

- Fears related to not knowing what is being asked. To this end, improvements can be made to the information provided to the students to develop skills autonomously in order to reduce this fear. There are mechanisms on-line (virtual platforms, Blackboard Collaborate Ultra -BBCU-, virtual gambling games, etc.) and off-line (seminars, practices, master classes, serious games adapted to the classroom, etc.).
- Fears related to new ways of working. The teaching staff must develop teaching materials and implement group activities based on collaboration, where it is explained in detail what new implications the study will have on the proposed methodology. In this way, it would be possible to generate greater enthusiasm on the part of the students, helping them to empathize with their peers and to achieve, through critical and systemic thinking, an awareness of their own context and surrounding environment, interpreting their own reality.
- Fear of not having sufficient skills to deal with the subjects. To combat this, it is essential to use the PBL methodology as a vehicle for developing a more proactive attitude among students. Through PBL, students must use different tools (real life problems based on constructivism, activities designed in a learning environment adapted to the needs of the students, enrichment of teaching processes through gamification, etc.) that, together with their own sensitivity, help them to make decisions in both a university environment and in the workplace.

However, when a student confronts and overcomes their fears, the reward is worth it to see them acquire the professional skills (autonomy, empathy, proactivity and enthusiasm). The labor market demands these ones. So, despite the fears of implementing an active methodology based on PBL, students consider it a positive for their professional life. It is therefore a key factor that must be worked on by teachers and universities as a whole when implementing active methodologies.

5. Conclusions

Business studies are the ideal subject for the application of active methodologies such as PBL. Its methodological application is in accordance with labor demands, and it has been proven to be the best methodology to help develop the competences demanded by companies. These companies not only demand knowledge, which is presupposed by the acquisition of a university degree, but also skills, such as autonomy, empathy, self-criticism, proactivity, self-esteem and enthusiasm. However, when implementing active methodologies in the classroom, both teachers and students must be prepared to reduce fears and promote the opportunities that PBL methodology provides for the acquisition of skills.

This study contributes to previous literature on PBLs in several ways: firstly, this study replies to the call for further research suggesting that new pedagogies will require changes in the relationships between teachers and students about teaching and learning strategies, and in how learning is assessed (Fullan and Langworthy, 2013). They argue that, unless a new pedagogy materializes, students will become increasingly bored and unmotivated and teachers will become even more stressed. So, it is necessary to offer teachers educational programs for learning emotional methods to face students' fears to successfully develop PBL among students. Secondly, this study empirically shows the fears of accounting students who have not been widely studied in the previous literature.

Despite these contributions, this study is not free of limitations that may be overcome in future research. It would be interesting to consider the following academic years from the year analysed 2017/2018 and even more, the future research can be lead to accounting students of different courses of Business and Management Administration and not only to students of the Specialty of Accounting Management. Likewise, it would be interesting to have the point of view of the students of the Master's Degree in Auditing and Higher Accounting. Since these students close

the cycle at the university and can offer very relevant information on how they have perceived the new teaching systems based on PBL.

It may be that, after several years in the labour market, students' perceptions of professional skills may differ. Therefore, it would be interesting to extend the study through disaggregated data. Where the perceptions and fears of higher education students are compared with graduates who have been working in the accounting field for approximately five years.

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Appendix: Significance

The analysis of variances (ANOVA) is prepared to offer data on variables that follow a normal distribution, obviously this does not always happen since it can occur that students are very much in favour or very against active methodologies (which gives an asymptotic distribution).

Therefore, sometimes non-parametric tests can be done, for the case of variables that do not follow a normal distribution, such as Kruskal-Wallis.

Table 10. Test statistics[a,b] (source: Own work)

	M1	M2	M3	M4	M5	M6	M7
Chi-square	122,386	120,494	118,560	86,546	76,649	92,537	75,826
gl	4	4	4	4	4	4	4
Asymptotic sig.	,000	,000	,000	,000	,000	,000	,000

a. Kruskal Wallis test
b. Variable of group: SATISF_M

For this test with sig. < 0.05 for 4 degrees of freedom (*they are 4 because the Likert scale is 5 and the degrees of freedom are k-1*), the independent variable indicates that "SATISF_M" is related to all "MX" fears, without ruling out any.

Table 11. Test statistics[a,b] (source: Own work)

	A1	A2	A3	A4	A5	A6
Chi-square	74,307	115,633	116,020	75,606	114,742	130,214
gl	4	4	4	4	4	4
Asymptotic sig.	,000	,000	,000	,000	,000	,000

a. Kruskal Wallis test
b. Variable of group: SATISF_A

For this test with sig. < 0.05 for 4 degrees of freedom (*they are 4 because the Likert scale is 5 and the degrees of freedom are k-1*), it indicates that the independent variable "SATISF_A" is related to all the contributions "AX", without ruling out any.