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# Perception of the MANCOMA model among undergraduate accounting students

Percepción de los estudiantes universitarios de Contabilidad sobre el modelo MANCOMA

会计专业大学生对MANCOMA模型的认知

Восприятие модели MANCOMA студентами университета, изучающими бухгалтерский учет

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## Abstract

As an environment where it is necessary to apply methodological models based on learning and evaluation through competencies, Higher Education in Accounting requires the renunciation of traditional methodologies, which are based on the accumulation of accounting knowledge and summative evaluation systems founded on memorization. These should be replaced with active methodologies and a formative evaluation system. In order to solve this problem, a model called "MANagement of COMpetence in the areas of Accounting" (MANCOMA) was designed, oriented to formative evaluation and supported by a blended learning environment. In this context, the purpose of this work has been to explore the students' perception of such a model, designed and proposed for the subject "Financial Accounting III" belonging to the "Degree in Business Administration and Management" (ADE) of the University of Extremadura (Spain). It is to be considered as one of the key factors when evaluating the quality of our teaching experience. A total of 200 students participated in this study, belonging to the ADE groups of the subject, as well as the double degrees: ADE-Tourism and Law-ADE. The data were collected through a questionnaire for descriptive analysis, showing in the results, a positive perception of students towards the model. This finding suggests that the use of the model facilitates learning, providing greater motivation. It is a work that offers support to teachers of financial accounting, in higher education, interested in training and evaluating via competencies.

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*Keywords:* B-learning, blended learning, competence, accounting, higher education, student satisfaction.

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## Resumen

Un entorno donde es necesario la aplicación de modelos metodológicos basados en el aprendizaje y evaluación por competencias exige a la Educación Superior en Contabilidad el abandono de metodologías tradicionales, basadas en la acumulación de conocimientos contables y sistemas de evaluación de carácter sumativo basados en la memorización, sustituyéndolas por metodologías activas y un sistema de evaluación formativo.

Para dar solución al problema formulado, se diseñó un modelo denominado «MANagement of COMpetence in the areas of Accounting» (MANCOMA), orientado a la evaluación formativa y respaldado por un ambiente de aprendizaje en modalidad de «Blended learning».

En este contexto, el propósito de este trabajo ha sido explorar la percepción de los estudiantes sobre dicho modelo, diseñado y propuesto para la asignatura «Contabilidad Financiera III» perteneciente al «Grado en Administración y Dirección de Empresas» (ADE) de la Universidad de Extremadura (España), considerándolo como uno de los factores claves a la hora de evaluar la calidad de nuestra experiencia docente. Participaron en este estudio un total de 200 estudiantes, pertenecientes a los grupos de ADE de la asignatura, así como de los dobles grados: ADE-Turismo y Derecho-ADE. Los datos fueron recogidos a través de un cuestionario para su análisis descriptivo, mostrando los resultados una percepción positiva de los estudiantes hacia el modelo, hallazgo que sugiere que la utilización del modelo facilita el aprendizaje, proporcionándole una mayor motivación. Un trabajo que aporta apoyo a profesores de contabilidad financiera, en educación superior, interesados en formar y evaluar por competencias.

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*Palabras claves:* B-learning, Blended Learning, competencia, contabilidad, educación superior, satisfacción del estudiante.

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## 摘要

本文背景为一个在需要应用基于学习和能力评估的方法模型的环境,要求高等教育会计专业摒弃基于对会计知识积累和记忆的总结性评估系统的传统教学方法,以积极的方法和形成性的评估体系对其取而代之。

为了解决制定的问题,我们设计了一个名为“MANagement of COMpetence in the areas of Accounting”(MANCOMA)的模型,该模型面向形成性评估,并以“Blended learning”的形式提供学习环境的支持。

在此背景下,本研究目的是探索学生对上述模型的看法,该模型是为西班牙埃斯特雷马杜拉大学“工商管理学位(ADE)”的“财务会计 III”科目设计和提出的。共有 200 名学生参加了这项研究,他们分属于该学科的 ADE 组,以及 ADE-Tourism 和 Law-ADE 双学位组。我们通过问卷调查收集数据,用于进行描述性分析。结果显示学生对模型的积极认知。这一发现表明模型的使用促进了学习,提供了更大的动力。本研究为在高等教育中金融会计专业对培训和评估能力感兴趣教师的工作提供了支持。

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关键词: B-learning, Blended Learning, 能力、会计、高等教育、学生满意度。

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## Аннотация

Среда, в которой необходимо применять методологические модели, основанные на обучении и оценке по компетенциям, требует от высшего бухгалтерского образования отказаться от традиционных методик, основанных на накоплении бухгалтерских знаний, и систем суммарной оценки, основанных на запоминании, заменив их активными методиками и системой формативной оценки. Для решения этой проблемы была разработана модель «Управление компетентностью в области бухгалтерского учета» (MANCOMA), ориентированная на формативное оценивание и поддерживаемая смешанной средой обучения.

В этом контексте целью данной работы было изучение восприятия студентами этой модели, разработанной и предложенной для предмета «Финансовый учет III», входящего в программу «Степень в сфере делового управления и менеджмента» (ADE) Университета Эстремадуры (Испания), рассматривая ее как один из ключевых факторов при оценке качества нашего опыта преподавания. В исследовании приняли участие 200 студентов, принадлежащих к предметным группам ADE, а также к двойным степеням: ADE-Tourism и Law-ADE. Данные были собраны с помощью анкеты для описательного анализа, и результаты показали положительное отношение студентов к модели, что говорит о том, что использование модели облегчает обучение, обеспечивая большую мотивацию. Работа, обеспечивающая поддержку преподавателей финансового учета в высшем образовании, заинтересованных в обучении и оценке по компетенциям.

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*Ключевые слова:* Blended Learning, компетентность, бухгалтерский учет, высшее образование, удовлетворенность студентов.

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## Introduction

The technological revolution, social transformation and changes in economic structure create new challenges for the accounting profession and implications for Higher Education in Accounting, which require student-centered teaching-learning approaches oriented to knowledge construction. There are new demands that cannot be met by teaching methodologies, based on the transmission of content and summative evalu-

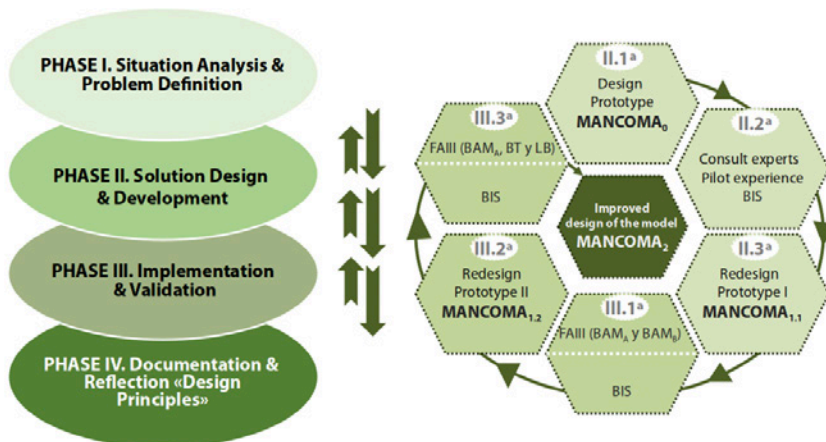
ation. We need to have models focused on training and assessment by competencies, mitigating the problems caused by the high number of students per classroom-group, high teaching load of the professor and large number of competencies to be developed. Also, to be taken into account is the limited time available for the development of classroom sessions, conditions that make it difficult to provide useful feedback to the student and reduce the quality of teaching practices.

The current situation of university teaching in accounting has been analyzed by Apostolou et al. (2021), showing the need to increase research in this area of knowledge.

In order to find real solutions to the indicated problems, following a “Design Based Research” (DBR) strategy (Kennedy-Clark, 2013; Reeves, 2006; Wademan, 2005) and adopting a quasi-experimental approach, a training and evaluation model was designed. It applies to the subject “Financial Accounting III” (CFIII) belonging to the “Degree in Business Administration and Management” (ADE) of the University of Extremadura (Spain). It is a model of competences and is geared towards university students in the area of Financial Accounting, called “MANagement of COMpetence in the areas of Accounting” (MANCOMA). It integrates a pedagogical approach based on: (a) active and meaningful student learning; (b) promotion of collaborative learning; (c) use of evaluation rubrics for learning and (d) learning environment in “Blended learning” (BL) or Hybrid Learning modality, combining face-to-face teaching with distance modality. It is a model that has been subsequently implemented in the classroom for the collection of information, allowing its validation, adjustment and redesign, perfecting the intervention. It creates a teaching experience in which it was considered necessary to evaluate the perception and satisfaction of students about the usefulness and capability of the methodology used, to facilitate and improve their learning by competencies.

Therefore, this study describes the students’ perception of the MANCOMA model, a work that is part of a broader study (Figure 1). The objective is to verify whether the combination of pedagogical, technological and organizational elements in the model is adequate, so that the results of this research complement the results obtained from teacher analysis and expert opinion, thus closing the triangulation process.

Figure 1  
Timing of the complete investigation



Once the study of the theoretical framework and the problems in practice had been defined, an initial prototype of the MANCOMA<sub>0</sub> Model (Pilot Prototype) and the learning environment were designed in the first phase. The second phase includes a micro-phase in which a pilot experience is carried out using a simplified version of the MANCOMA<sub>0</sub> model. Its main purpose was to identify possible difficulties that could arise during the implementation of the complete model and to make the necessary corrections, as well as to have a first approximation of the students' perception of the use of the rubrics in the teaching-learning process and the WebQuest. This is an attempt to ensure the reliability of the design before starting the fieldwork study. The pilot phase was implemented in the subject of Business Information Statements (2nd year of the Degree in Finance and Accounting), in the first semester of the 2012-2013 academic year. Likewise, in order to check the validity of the model, expert judgment was used, for which the participation of five university professors with extensive experience was requested, to whom a validation protocol was presented.

With the information and experience obtained, the model and the learning environment were revised in a third phase, concluding the first version of the MANCOMA1.1 Model. (Prototype I) which is implemented in the classroom in STAGE III, in a first phase, in the second semester of the academic year 2012-2013. This is a phase in which the data obtained allow us to evaluate the model and from which an adjusted version emerges, the MANCOMA1.2 Model (prototype II), which is again implemented in the classroom in STAGE III, in a first phase, in the second semester of the academic year 2012-2013. (Prototype II) is implemented again in the classroom, in a second phase, in the second semester of the academic year 2013-2014, extending its implementation to the Double Degree ADE-Tourism and Law-ADE.

Among the data obtained in both phases of stage III, used for the progressive improvement of our model, are the students' evaluations of prototype I and II, obtained through a questionnaire, whose results are the ones analyzed in this work.

For the design of the model, we relied on multiple works that supported the use of active and collaborative learning, evaluation rubrics and blended learning environments. Thus, active learning began to take relevance in the disciplines of natural sciences, extending later to the rest of the disciplines, and for which there are several studies indicating that active learning improves student learning and performance (Hettler, 2015). Several methods in which the university student assumes an active role within the teaching-learning process have been developed in the last decades: "Peer Instruction" (PI) or "Peer Instruction" (PI) (Balta et al., 2017), "Team-Based Learning" (ABE) or "Team-Based Learning" (TBL) (Christensen et al., 2019; Paguio & Jackling, 2016), "Problem-Based Learning" (PBL) or "Problem Based Learning" (PBL) (Gil-Galván et al., 2021), among others. These methodologies are in line with competency-based learning and collaborative learning (Moriña-Díez, 2021).

As a methodology, the application of cooperative learning is justified not only as a consequence of the environment that increasingly demands a preparation from citizens, that allows them to achieve greater cooperation and coordination and also because multiple research endorses cooperative learning as a methodology that produces higher academic achievement, more positive relationships among students and a favorable attitude towards learning. In this sense, there are several meta-analyses that have obtained positive results (Kyndt et al., 2013; Sung et al., 2017) that concur that cooperative learning brings significant benefits on students' achievement, attitudes, and social relationships, when compared to the results of competitive or individualistic learning situations (Castellanos Ramírez & Onrubia Goñi, 2015; Fu & Hwang, 2018).

If we focus on university education in Accounting, the last two decades studies are mainly oriented along two lines. On the one hand, there are those focused on contrasting whether cooperative learning allows the student to obtain better results than with other teaching strategies, analyzing the effectiveness of the use of cooperative learning and its influence on the achievements attained by the student (Akindayomi, 2015; Shawver, 2020). On the other hand, we see the use of evaluation rubrics. Regarding the use of rubrics, several works point out that it is essential to use them not exclusively as a qualifier but as a formative tool (Bohórquez Gómez-Millán & Checa Esquiva, 2019; Fraile Ruiz et al., 2017; Gallego Arrufat & Raposo Rivas, 2014; Valverde-Berrocoso & Ciudad-Gómez, 2014; Velasco Martínez & Tójar Hurtado, 2018). Regarding its use in online environments, as a support for the evaluation process, it was found that the use of the computer-assisted rubric allowed improving student satisfaction with the feedback and reducing teacher workload (Serna & Bergman, 2014).

Finally, the blended learning environment involves face-to-face teaching with computer-mediated instruction (Rasheed et al., 2019). To be effective, it requires a radical re-conceptualization and reorganization of teaching and learning (Bartolomé Pina et al., 2018; García-Ruiz et al., 2018; Salinas Ibáñez et al., 2018; Vo et al., 2017). Regarding the reasons for choosing to use a hybrid learning system, Graham et al. (2005) suggest three main reasons, advocated by a multitude of studies: (1) improved learning efficiency; (2) greater convenience and access; and (3) greater cost-effectiveness. In the field of university education in accounting, there is evidence of a positive attitude among students towards the blended learning environment (Osgerby, 2013). It has been found that positive student perception of key aspects of the blended learning environment tends to be correlated with a deep learning approach and thus positive learning outcomes (Chandra & Fisher, 2009; Ginns & Ellis, 2007; Owston et al., 2019). As such, students' perceptions of blended learning have been compared with traditional lectures and online courses (Larson & Sung, 2009); with the perception about the proportion of time devoted to the non-face-to-face aspect (Owston & York, 2018); or in relation to the use of the "flipped classroom" (Espada Mateos et al., 2020; Mengual-Andrés et al., 2020; Prieto et al., 2021; Romero García et al., 2021; Sousa Santos et al., 2021; Tourón Figueroa, 2021). However, there are obstacles and barriers that have not allowed the implementation of blended learning at the pace expected by most researchers, among which, Khan et al. (2015) highlight: a) reduced accessibility to computers; b) lack of technical support to teachers who feel some technological aversion; c) blurred understanding of teachers about the objectives for which blended learning is used; d) lack of professional development to support the change of the teacher's role from instructor to facilitator and e) difficulty in obtaining and maintaining the necessary funds to implement blended learning.

## Methodology

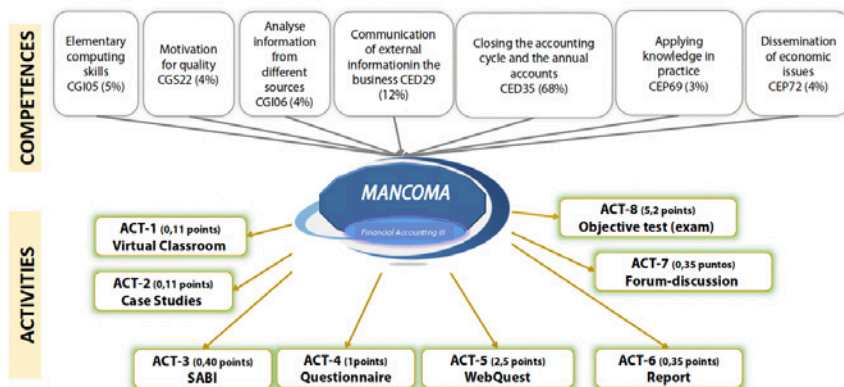
### Objective

The general objective of this study is to explore student perception of the effectiveness, efficiency and attractiveness of the MANCOMA model, designed and proposed for the subject "Financial Accounting III" belonging to the "Degree in Business Administration and Management" at the University of Extremadura (Spain). For its design, the competences to be developed in the student were standardized, the rubrics were elaborated and the face-to-face and on-line activities oriented to the formation and

evaluation of the competences of the subject were designed. A model characterized by combining a competency-based training system with an evaluation system coherent with the results that the student must demonstrate at the end of the training process, aligning the evaluation with the learning outcomes and the activities to be performed (Figure 2) and integrating a pedagogical approach based on (a) active and meaningful student learning, (b) the promotion of collaborative learning, (c) the use of evaluation rubrics for learning and (d) a mixed or “Blended learning” modality supported by the use of the Virtual Campus of the University of Extremadura.

Figure 2

*Competencies to be developed in the course and proposed activities*



Therefore, with this exploration, the specific objectives are as follows:

SO-1. To know the students’ perception of the usefulness and capacity of the model to facilitate their learning by competencies and within this, the student’s perception of the collaborative work, the usefulness of the resources and materials used, the activities proposed, the students’ perception of the implementation of a “blended learning” approach as a methodology for the teaching-learning process and the use of rubrics.

SO-2. To know the students’ perception of the workload and effort involved.

SO-3. To know the students’ perception of the influence of the model on their motivation and emotionality

## Sample

The sample under study included various groups of participants, specifically, students enrolled in the ADE-A and ADE-B groups of the course, as well as those enrolled in the two double degrees: ADE-Tourism (ADE-TUR) and Law-ADE (DCHO-ADE).

The type of sampling used was non-probabilistic and within these, we opted for convenience sampling.



Table 1

*Technical data sheet of the study*

Technical data sheet of the study		
Population Universe	Students enrolled in the Financial Accounting III course of the Business Administration and Management Degree (ADE) at the University of Extremadura.	
Geographic scope	Faculty of Business, Finance and Tourism-University of Extremadura	
Population	104 students (Group ADE-A) 91 students (Group ADE-B) 195 students in total	67 students (Group ADE-A) 57 students (Group ADE-TOURISM) 51 students (Group LAW-ADE) 175 students in total
Sample size	66 students (Group ADE-A) 40 students (Group ADE-B) 106 students in total	27 students (Group ADE-A) 26 students (Group ADE-TOURISM) 41 students (Group LAW-ADE) 94 students in total
Response rate	63.46 % (Group ADE-A) 43.95 % (Group ADE-B) 54.35 % in total	40.30 % (Group ADE-A) 45.61 % (Group ADE-TOURISM) 80.39 % (Group LAW-ADE) 53.71 % in total
Data collection method	Questionnaire hosted on the Moodle platform	
Date of fieldwork	2nd semester of the 2012-2013 academic year	2nd semester of the 2013-2014 academic year
Data processing	SPSSv19	

Table 2

*Characterization of the sample*

		2012-2013 Course			2013-2014 Course			
		ADE-A	ADE-B	Total	ADE-A	ADE-TOURISM	LAW-ADE	Total
SEX	H	26 (39.4 %)	17 (42.5 %)	43 (40.6%)	12 (44.4%)	5 (19.2%)	18 (43.9%)	35 (37.2%)
	M	40 (60.6 %)	23 (57.5 %)	63 (59.4)	15 (55.6%)	21 (80.8%)	23 (56.10)	59 (62.8%)
Total		66	40	106	27	26	41	94



	2012-2013 Course				2013-2014 Course			
	ADE-A	ADE-B	Total		ADE-A	ADE-TOURISM	LAW-ADE	Total
AGE	18-21	37 (56.1 %)	26 (65 %)	63 (59.4%)	16 (59.3%)	24 (92.3%)	13 (31.7%)	53 (56.4%)
	22-24	18 (27.3 %)	11 (27.5 %)	29 (27.4%)	5 (18.5%)	2 (7.7%)	27 (65.9%)	34 (36.2%)
	25-27	9 (13.6 %)	1 (2.5 %)	10 (9.4%)	4 (14.8%)	0	1 (2.4%)	5 (5.3%)
	+ 28	2 (3 %)	2 (5 %)	4 (3.8%)	2 (7.4%)	0	0	2 (2.1%)
<b>Total</b>		<b>66</b>	<b>40</b>	<b>106</b>	<b>27</b>	<b>26</b>	<b>41</b>	<b>94</b>

## Data collection

For data collection, a questionnaire was designed and hosted in the virtual classroom of “Financial Accounting III” of each of the groups. It was set up in the Virtual Campus, asking students to answer the questions before the end of the semester, in the final days of classes.

## Components and Analysis

Once the data had been collected, a descriptive analysis of student perception of the competency-based training and assessment model was carried out, focusing on three issues: (a) the usefulness and capacity of the model to facilitate their learning; (b) workload and effort involved and (c) the influence on their motivation and emotionality during the teaching-learning process; allowing us to measure, from the student's point of view, the degree of effectiveness, efficiency and attractiveness of the proposed model.

The dependent variable involved in this study was “Student perception of the model and their satisfaction or not with it”, although, since it is a complex variable, we had to replace it with other more concrete variables, more representative of them. Their operationalization is shown in Table 3.

Table 3

Variable «Student' perception and satisfaction with the model»

SPECIFIC OBJECTIVES	Dimensions	Indicators	Measurement level
SE-1	F2. Teaching plan and methodology	Questions from F2.1 to F2.12	Six-point Likert scale
SE-1	F3. Student care	Questions from F3.1 to F3.2	
SE-3	F4. Motivation towards learning	Questions from F4.1 to F4.9	
SE-1	F5. Educational resources	Questions from F5.1 to F5.3	
SE-1	F6. Learning activities	Questions from F6.1 to F6.7	
SE-1	F7. Use of virtual classroom	Questions from F7.1 to F7.3	
SE-2	F8. Workload - difficulty	Questions from F8.1 to F8.3	
SE-1	F9. Assessment: use of rubrics	Questions from F9.1 to F9.11	
SE-1	F10. Learning outcomes	Questions from F10.1 to F10.9	

A questionnaire was developed for data collection, using an adaptation of the SEEQ (Students' Evaluations of Educational Quality) questionnaire, created by Marsh (1987).

For the blocks, consisting of a total of 58 items (<https://bit.ly/3eLptep>), a Likert-type and semantic differential scale was used, with six alternatives, omitting the central response category, forcing the responses of undecided subjects toward a pole of agreement or disagreement, graduated from 1 to 6.

The reliability of this questionnaire was measured by calculating Cronbach's alpha, obtaining as a result an  $\alpha = .951$ , for the first course, an  $\alpha = .949$ , for the second course, which was considered very high.

The KMO value was .870, which shows that the data have sufficient adequacy for a factor analysis model. The Barlett's contrast indicates that the null hypothesis is significant and that, therefore, it makes sense to apply factor analysis to this scale (Table 4).

Table 4

Bartlett's test for sphericity

Bartlett's test		
$\chi^2$	df	p
3560.553	1035.000	< .001

The result of the Exploratory Factor Analysis leads to the identification of three dimensions of the questionnaire (Table 5).

Table 5

*EFA factors, items per factor and name of the dimensions*

Factors	Items	Dimensions
Factor 1	F2.1-F2.9 / F4.1-F4.9	Conditions for learning
Factor 2	F9.1-F9.10	Assessment by rubrics
Factor 3	F6.1-F6.7 /F10.1-F10.9	Competencies

Once the data had been collected, the descriptive analysis of the data was performed in a computerized environment using the SPSS v. 19 software package.

Prior to the descriptive analysis, it was necessary to perform an exploratory analysis of the data, checking, on the one hand, for the presence of outliers. Initially, in the first academic year, 8 outliers were studied and the decision was taken to eliminate two of them, while in the following academic year none were identified. On the other hand, the Kolmogorov-Smirnov and Shapiro-Wilk tests were used to check whether the values of the variable followed a normal distribution, while the Levene test was used to study the homogeneity or homoscedasticity of the variances, from which it was found that not all the required restrictions were met.

## Analysis and Results

When analyzing student perception of: (a) the usefulness and capacity of the competency-based assessment model to facilitate their learning; (b) workload and effort involved and (c) the influence on their motivation and emotionality during the teaching-learning process: in the two academic years analyzed, all mean ratings were higher than the theoretical mean of the response scale (3.5).

### Student perception of the model's usefulness and ability to facilitate competency-based learning

When analyzing student perception of the usefulness and capacity of the methodology used in the MANCOMA model to improve and facilitate their learning by competencies, it can be seen in Table 6 and Table 7 that all the mean evaluations are higher than the theoretical mean of the response scale (3.5). Particularly noteworthy is the evaluation obtained in F2.5 "the evaluation criteria are understandable and have been communicated from the beginning of the course" (mean of 5.49 and 5.66), F2.2 "the learning of this course has been focused on the development of the competences defined in its program or teaching plan" (mean of 5.48 and 5.64) and F2. 4. "the teacher has always been clear about the criteria to be taken into account in the evaluation of the student and the standards adopted in the course" (mean of 5.41 and 5.60).

Table 6

*Outcome F2. Teaching plan and methodology*

Item	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F2.1	4.71	5	.723	4.83	5	1.197
F2.2	5.48	6	.500	5.64	6	.384
F2.3	4.97	5	.656	5.23	6	.783
F2.4	5.41	6	.701	5.60	6	.458
F2.5	5.49	6	.614	5.66	6	.377
F2.6	4.58	5	.836	4.55	5	1.282
F2.7	4.47	6	2.137	4.68	6	2.026
F2.8	4.71	5	.857	4.54	5	1.584
F2.9	4.74	5	1.339	4.90	6	1.571
F2.10	4.68	5	1.744	4.90	6	1.722
F2.11	4.42	5	1.637	4.23	5	1.816
ITEMS	Frequency		Percentage	Frequency		Percentage
F2.12A	YES: 74		YES: 69.8%	YES: 51		YES: 54.3%
	NO: 32		NO: 30.2%	NO:43		NO: 45.7%

In addition, in F2.12A, in which the student was asked if he/she would recommend the application of this methodology to other subjects, again it stands out that 69.8% of the sample, in the 2012-2013 course and 54.3% in the 2013-2014 course, answered yes.

Also noteworthy are the ratings, in Table 7, obtained in F3.1 "the teacher is accessible in individual dealings with students and makes me feel good when I go to him/her" (mean of 5.29 and 5.34) and in F3.2 "the teacher has always been available when I have needed him/her" (mean of 5.42 and 5.60), which shows that, despite the difficulty of having a large number of students, thanks to the effort made, fluid communication had been maintained with the students.

Table 7

*Outcome F3. Student care*

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F3.1	5.29	6	.742	5.34	6	.937
F3.2	5.42	6	.607	5.60	6	.588

If we focus on the student's consideration in relation to the influence of collaborative work on their learning, question F2.7 "collaboration among students (group work) has been positive for learning because it has allowed the sharing of knowledge and ideas" obtained an average rating of 4.47 and 4.68 (Table 6), a score that allows us to conclude that, in the student's opinion, collaborative work is positive for their learning. In addition, we can add that, based on the average evaluation of 4.74 and 4.90 obtained in question F2.9 "The teaching methodology of the subject has favored teamwork" (Table 6), that this collaborative work is favored for the methodology used.

Table 8

*Outcome F5. Learning resources-materials*

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F5.1	5.22	5	.686	5.38	6	.669
F5.2	4.95	5	.979	5.09	6	1.154
F5.3	5.09	5	.715	5.10	6	1.077

When analyzing student perception of the usefulness and capacity of the learning resources and materials used in the course to improve and facilitate their learning by competencies, Table 8 shows that all the mean evaluations are higher than the theoretical mean of the response scale (3.5). If we analyze the results, the evaluation obtained in F5.1 "the didactic material of the subject was well prepared and delivered in a timely manner" (mean of 5.22 and 5.38) and F5.3 "the teaching methodology of this subject has facilitated access to the didactic material" (mean of 5.0 and 5.10), stand out especially.

Regarding student perception of the usefulness and capacity of the activities proposed in the course to improve and facilitate their learning by competencies, it is verified, in Table 9 and Table 10, that all the mean evaluations are higher than the theoretical mean of the response scale (3.5). The student considers that all the proposed activities have been very useful for his learning and have allowed him to improve in each of the competences included in the subject.

Table 9

*Outcome F6. Learning activities*

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F6.1	5.27	6	.810	5.24	6	1.004
F6.2	5.17	6	.771	5.04	6	1.353
F6.3	4.76	5	.982	4.85	6	1.547

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F6.4	5.03	5	.771	5.00	5a	1.118
F6.5	5.12	5	.947	5.11	6	1.150
F6.6	4.80	5	.941	4.63	5	1.806
F6.7	4.06	5	1.597	4.27	4	1.574

Note. a. There are various modes. The smallest of the values will be displayed

On the other hand, when comparing the grade expected by the student (F10.9) and the one actually obtained, it is verified that the expected grade is slightly higher than the one finally obtained (mean of 7.26 and 7.22).

Table 10

Outcome F10. Learning outcomes

Items Mean	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x	
F10.1	4.76	5	.982	5.26	6	1.052
F10.2	4.86	5	.675	5.02	5	.817
F10.3	4.85	5	.929	4.97	5	1.257
F10.4	4.90	5	.722	5.14	5	.809
F10.5	5.01	5	.600	5.14	6	.959
F10.6	4.97	5	.618	5.13	5	.736
F10.7	4.77	5	.672	4.83	5	.702
F10.8	5.11	5	.635	4.98	5	1.032
Item	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F10.9. Expected qualification	7.68	8	.944	7.71	8	1.734
Qualification obtained	7.26	8	1.773	7.22	5	4.231

When analyzing student perception of the usefulness and capacity of the use of the virtual classroom as a learning environment in “blended learning” mode to improve and facilitate their learning by competencies (effectiveness of the model), it can be seen in Table 11 that all the average evaluations are higher than the theoretical av-

erage of the response scale (3.5). The student values that the use of the virtual classroom has favored his individual learning since it has been adapted to his needs, has allowed him to carry out the complete development of the subject, in spite of the fact that there could be difficulties to attend class, putting within his reach communication tools that have facilitated interaction and communication with his classmates and with the teacher, slightly improved in the second course with respect to that of the students in the previous course.

Table 11

*Result F7. Use of the virtual classroom*

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F7.1	4.99	5	.886	5.12	6	1.051
F7.2	5.11	6	1.111	5.15	6	1.375
F7.3	5.11	5	.654	5.23	6	.848

Focusing on the analysis of student perception of the usefulness and capacity of the rubrics to improve and facilitate their learning by competencies (effectiveness of the model), Table 12 shows that all the mean evaluations are higher than the theoretical mean of the response scale (3.5). Particularly noteworthy is the evaluation obtained in F.9.5 "the rubric favors the teacher's evaluation criteria to be clearer" (mean of 4.82 and 5.43) and F9.8 "the rubric has provided the student with knowledge about the criteria to be used in the evaluation, which has allowed him/her to evaluate the performance of his/her peers (peer evaluation)" (mean of 4.82 and 5.36), improved in the second course with respect to that of the students in the previous course.

Table 12

*Outcome F9. Evaluation: use of rubrics*

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F9.1	4.55	5	1.222	4.89	5	1.021
F9.2	4.51	5	1.205	5.05	5	.890
F9.3	4.60	5	1.194	4.99	5	1.107
F9.4	4.70	5	1.070	5.31	6	.753
F9.5	4.82	5	1.025	5.43	6	.634
F9.6	4.76	5	1.115	5.30	6	.642
F9.7	4.80	5	1.189	5.39	6	.564
F9.8	4.82	5	.987	5.36	6	.577



F9.9	4.71	5	.895	5.26	6	.708
F9.10	4.68	5	1.172	5.09	6	.939
<b>Item</b>	<b>Frequency</b>	<b>Percentage</b>		<b>Frequency</b>	<b>Percentage</b>	
F9.11A	YES: 70	YES: 66.0%		YES: 78	YES: 83.0%	
	NO: 36	NO: 34.0%		NO: 16	NO: 17.0%	

In addition, we highlight the results obtained in question F9.11A, in which the student was asked if he/she preferred the use of evaluation rubrics by the faculty to other instruments traditionally used, where 66% of the course sample answered yes in the first year and 83% in the second year.

### Student perception of workload and effort involved

As for the student's consideration as to whether the workload of the subject was reasonable, according to the results included in Table 13, in the first course analyzed, they answered "great" and when asked how many hours per week, outside class hours, they had dedicated to the subject, 48.1% answered 6 to 7 hours, coinciding with the forecast made by the professor. However, in the second course analyzed, 33.0% of the students stated that the number of hours per week dedicated to the subject had been 8-9 hours, which led us to consider that there had been an excess of work and it was necessary to propose actions that would allow a reduction.

In addition, in relation to the level of difficulty of the subject, the student rated it as "difficult", although the average grade obtained in the courses was over 7, so it was considered that the student experienced "adaptive anxiety".

Table 13

Result F8. Workload - difficulty

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F8.1	5.13	5a	.897	5.71	6	.250
F8.2	4.75	5	.606	5.03	5	.569
<b>Item</b>		<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	
F8.3	2-3	5	4.7	3	3.2%	
4-5						
6-7	23	21.7	16		17.0%	
8-9	51	48.1	27		28.7%	
10 +						
	23	21.7	31		33.0%	
	4	3.8	17		18.1%	

Note. a. There are various modes. The smallest of the values will be displayed

## Student perception of the influence of the model on their motivation towards learning

Finally, when analyzing student perception of the influence of the methodology proposed in the course, through the MANCOMA model, on their motivation towards learning, it is evident in Table 14, that there is an increase in student interest in the subject after completing the course, increasing their interest from 4.86 and 4.57 (F4.1 “level of student interest in the subject of this course before enrolling”) to 5.20 and 4.86 (F4.2 “level of student interest in the subject after taking CFIII”). In addition, the average evaluation obtained in F4.8. “the teacher motivates students to participate in both classroom and on-line activities” was 5.27 and 5.33, in F4.7 “the teaching methodology developed by the teacher has made them participate in the learning activities” 5.22 and 5.30, while in F4.6 “the teacher’s methodology has made them attend class regularly” 5.22 and 5.19.

Table 14

*Outcome F4. Motivation towards learning*

Items	2012-2013 Course (n= 106)			2013-2014 Course (n= 94)		
	Mean	Mode (1-6)	Variance S2x	Mean	Mode (1-6)	Variance S2x
F4.1	4.86	5	.846	4.57	5	1.860
F4.2	5.20	6	.732	4.86	5a	1.282
F4.3	5.02	5	.762	5.18	5	.709
F4.4	4.98	5	.704	5.23	6	.869
F4.5	4.34	4a	1.160	4.34	5	1.345
F4.6	5.22	6	.838	5.19	6	.995
F4.7	5.22	6	.743	5.30	6	.835
F4.8	5.27	6	.886	5.33	6	.912
F4.9	4.75	5	.987	4.36	5	2.018

*Note.* a. There are various modes. The smallest of the values will be displayed

## Discussion and Conclusions

The results obtained in this study show that student perception of the usefulness and capacity of the methodology used in the course to facilitate and improve their learning by competencies is very good. Similarly, students are mostly satisfied with the collaborative work, the learning resources and materials used, the proposed activities, the use of the virtual classroom as a learning environment in “Blended Learning” and the rubric. No negative aspects are mentioned here, so we might recognize the formative value. These results are consistent with other studies on b-learning and collaborative learning (Hasanuddin et al., 2019; Hu et al., 2021; Ustun & Tracey, 2021); or on the effectiveness of assessment e-rubrics (Aji et al., 2018; Giacomo & Savenye, 2020; Monje

et al., 2014; Plank et al., 2016). Likewise, from the analysis it is clear that student perception of the motivation towards learning provided by the methodology proposed in the subject, through the MANCOMA model, is also good.

However, the student considers that the workload and difficulty of the subject is high, which is not an obstacle for the academic results to be good, although it requires the proposal of actions that allow a reduction. Workload is a variable that other research has also recognized as an influential factor on achievement expectations and academic performance (Gregory & Lodge, 2015; Phillips et al., 2016; Ryan et al., 2014).

Therefore, we can affirm that students value that the model, as a methodological tool, is: a) effective, since it allows the development of both generic and specific competencies, promotes meaningful learning and formative assessment; b) attractive since it is considered that it has motivational and emotional capacity during the teaching-learning process; and c) efficient in relation to the cost of the additional resources needed, such as materials, equipment or other requirements. However, doubts emerge as to efficiency related to the time and effort required, a situation that would probably improve if the number of competencies to be developed in the subject were reduced, since we consider that the high student workload is not a problem originated by the model but by the excessive number of competencies included in the subject.

This is a study that provides us with the possibility of advancing in the theories of teaching-learning in complex and flexible environments, within the accounting discipline. Contributions that may offer support to teachers in financial accounting and the scientific accounting community, since, although the model was essentially designed for "Financial Accounting III", with minor adaptations, it could be susceptible to be applied in similar contexts, for example, in "Business Information Statements" of the "Degree in Finance and Accounting" and in "Financial Accounting II" of the "Degree in Tourism".

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