



## The effect of previous experience with working in groups on students' academic performance in the accounting discipline

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### ABSTRACT

This paper analyses the implementation of cooperative learning techniques in accounting subjects to investigate whether students' willingness to work in groups, based on their perceptions regarding this learning technique arising from previous group working experiences, are related to their academic performance. The findings reveal that students' perceptions regarding their improved skills due to having worked in groups are positively and significantly related to their academic performance; meanwhile, students' perceptions of having learnt from others are negatively and significantly related to their academic performance. Therefore, this study extends the existing literature on cooperative learning and students' academic performance by considering students' attitudes toward working in groups resulting from their prior experiences.

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## El efecto de la experiencia previa de trabajo en grupo sobre el rendimiento académico de los estudiantes en la disciplina de contabilidad

### RESUMEN

Este trabajo analiza la aplicación de técnicas de aprendizaje cooperativo en asignaturas de contabilidad para investigar si la disposición de los estudiantes a trabajar en grupo, a partir de sus percepciones sobre esta técnica de aprendizaje derivadas de experiencias previas de trabajo en grupo, están relacionadas con su rendimiento académico. Los resultados revelan que las percepciones de los estudiantes respecto a la mejora de sus habilidades por haber trabajado en grupo se relacionan positiva y significativamente con su rendimiento académico; mientras que las percepciones de los estudiantes respecto a haber aprendido de otros se relacionan negativa y significativamente con su rendimiento académico. Por lo tanto, este estudio amplía la literatura existente sobre el aprendizaje cooperativo y el rendimiento académico de los estudiantes, al considerar las actitudes de los estudiantes hacia el trabajo en grupo resultantes de sus experiencias previas.

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## 1. Introduction

Previous literature has overwhelmingly supported how cooperative learning (henceforth CL) structures are related to higher academic accomplishment compared to individualistic and competitive learning structures (e.g. Johnson, Johnson & Smith, 2007; Johnson, Johnson & Stanne, 2000; Roseth, Johnson & Johnson, 2008). Nevertheless, the development of the study of CL in higher education is still scarce because most empirical studies have been based on primary and secondary school level experiments (Herrmann, 2013; Pérez-Estébanez, 2017).

However, in the last decade, there has been an increase of studies analysing CL techniques in higher education, particularly in the accounting discipline, inasmuch as the scholarly interest in CL has substantially grown at the university level (e.g. Apostolou, Dorminey, Hassell & Rebele, 2017; Hillyard, Gillespie & Littig, 2010; Strand-Norman, Rose & Lehmann, 2004). Nonetheless, the results are not conclusive at all. While some studies highlight the positive effects of CL on students' academic performance (Delgado-Hurtado & Castrillo-Lara, 2015; Hwang, Lui & Tong, 2005; Ravenscroft, Buckless, McCombs & Zuckerman, 1995), other authors point out the existence of a negative relationship between CL and students' academic outcomes (Ravenscroft, Buckless & Zuckerman, 1997; Zariski, 1997). Moreover, there are also some studies revealing neutral or even non-existent relationships between CL and students' academic performance (Gabbini & Wood, 2008; Lancaster & Strand, 2001; Vreven & McFadden, 2007).

Furthermore, there are also studies that have evaluated students' attitudes and perceptions regarding CL. In this sense, Caldwell, Weishar and Glezen (1996) found that students in CL environments are more likely to maintain positive perceptions of accounting than students using traditional learning formats. Additionally, some authors have demonstrated that students perceived that they achieve better outcomes from CL than in traditional teaching environments (Clinton & Kohlmeyer, 2005; Van der Laan Smith & Spindle, 2007), and make more progress in developing transferable skills, such as planning, organising, interpersonal and communication abilities (Ballantine & Larres, 2009; Dyball, Reid, Ross & Schoch, 2007; Sridharan, Muttakin & Mihret, 2018). Conversely, Lancaster and Strand (2001) found no significant effect of CL techniques on students' perceptions regarding this learning tool.

In recent years, a number of authorities, such as the International Federation of Accountants (IFAC), the American Institute of Certified Public Accountants (AICPA) or the Chartered Accountants Australia New Zealand (CAANZ) have called for the development of a broader range of required, and still lacking, professional skills (Dyball et al., 2007; Ramsay, Hanlon & Smith, 2000; Stanley & Marsden, 2012) or "soft skills" (Arquero & Fernández-Polvillo, 2019) in accounting graduates. In the current environment, intellectual, technical and functional knowledge is not enough. On the contrary, other skills such as group working, communication, participation, leadership and critical analysis are very important to succeed in the labour market. Therefore, the development of the abovementioned skills and competences should be part of universities' educational plans, inasmuch as these skills should have at least the same value as accounting knowledge in recruitment processes (González, Arquero-Montaño & Hassall, 2009; Russell, Kulesza, Albrecht & Sack, 2000).

Although the existing literature has analysed the effects

of CL on students' academic performance and also the influence of students' perceptions regarding CL on subjects and courses, there are still few studies evaluating the undergraduate students' attitudes and perceptions regarding CL on their academic outcomes (Ferreira & Santoso, 2008; Hillyard et al., 2010). Our paper addresses this gap in the literature by analysing the effect that students' predisposition towards CL, based on their previous experiences with CL, have on their academic performance in the accounting discipline.

Under the theoretical approach of CL, there are multiple teaching techniques by which this type of learning can be applied (Yamarik, 2007). From among all these techniques, this study is focused on working in groups, which is an effective learning tool within a CL environment (Ballantine & Larres, 2007, 2009; Dyball, Reid, Ross & Schoch, 2010), as long as it is based on positive or group interdependence, individual accountability, heterogeneous grouping, team processing and social skills (Cottell & Millis, 1992).

Thereby, the main purpose of this research is to analyse whether students' previous experiences and prior perceptions related to CL techniques, namely those regarding working in groups, are associated with higher levels of academic performance. Specifically, this study examines how different items related to prior expertise with working in groups, i.e. students' perceptions regarding having improved skills, having assumed a leading role, and having learnt from other group members, influence their academic performance in the accounting discipline.

By using a methodological approach based on group working, our findings reveal a positive impact of students' perceptions regarding their improved skills on academic performance due to having worked in groups. Furthermore, our results also reveal that students' perceptions of having learnt from others in prior experiences with working in groups are negatively related to their academic performance.

Therefore, this study contributes to the accounting education literature in several ways. First, although CL in higher education has been previously examined, this paper is directly focused on how students' perceptions regarding their previous experiences with working in groups influence their academic performance. Second, our study offers some interesting results that reveal an avenue for future research in the field of CL through working in groups in accounting subjects. Finally, it is important to highlight the benefits and value arisen from the collaboration and sharing between the four lecturers pertaining to three different universities that participate in this project, which marks a new development in the context of Spain where the obtaining of qualitative data is somewhat arduous.

The remainder of the paper is structured as follows. The next section provides a literature review of CL, with a specific focus on CL in the accounting discipline. Section three focuses on the effects of previous experiences with working in groups on students' academic performance. The fourth section formulates the research questions and section five shows the applied methodology. The results of the study are presented in the sixth section. Then, the discussions, practical implications, limitations, and future research avenues are collected. Finally, the main conclusions are presented.

## 2. Cooperative learning

### 2.1. Introduction to cooperative learning

CL has been defined as a pedagogy that implies the use of groups of students in which students have a common goal

and shared responsibility for the learning of other members (Ravenscroft et al., 1995). In this vein, different authors have also contributed to the definition of CL. For example, Slavin (1982, p.8) defined CL as "instructional methods in which students of all performance levels work together in small groups towards a group goal", meanwhile Johnson, Johnson and Smith (1991) described CL as the establishment of small student groups to maximize each student's learning.

It is worth noting that CL is based on groups of students and cooperation tasks. Johnson, Johnson and Smith (1995) pointed out that cooperation cannot be understood as the assignment of a job to a group of students, seated side by side, one of whom is doing all the work. Neither is it a matter of doing a task individually and whoever finishes first has to help the slower ones. By contrast, CL is understood as a teaching strategy in which each member of the group, which is formed by students of different levels of ability, is responsible not only for their own learning but also for the knowledge assimilation of all the members of the group, creating thus an atmosphere of joint achievement (Wichadee & Orawiwatnakul, 2012).

According to Johnson, Johnson, and Smith (1998), five elements are essential to successfully implement the CL approach in groups:

- *Positive interdependence.* All members of the group start out on the premise that they learn together to achieve their shared goal.
- *Promotive interaction.* Students should interact face-to-face in the group.
- *Individual and group accountability.* There should be awareness among the members that they are responsible for their own contribution.
- *Group processing.* Group members can identify ways to improve their own and each other's learning processes.
- *Social and small group skills.* Students should develop interpersonal skills such as decision-making, giving constructive feedback and conflict management.

Recently, the use of CL environments in higher education has received wide acceptance among educators and researchers, who are incorporating new methods and procedures in order to get greater student engagement (Opdecam, Everaert, Van-Keer & Buyschaert, 2014). In fact, authors such as Sharan (2002) or Slavin (1995), based on extensive research and practice support, have proposed different classifications of the available alternatives to put CL techniques into practice. For instance, small-group learning (Yamarik, 2007), group work (Healy, Doran & McCutcheon, 2018) or working in groups (Cottell & Millis, 1992; Opdecam et al., 2014; Wichadee & Orawiwatnakul, 2012) are different terms that refer to distinct learning tools through which CL can be implemented.

The widespread literature concerning CL has highlighted its positive influence on students' outcomes (Cottell & Millis, 1992; Lancaster & Strand, 2001) with regard to both conceptual achievement and socioemotional factors (Delgado-Hurtado & Castrillo-Lara, 2015; Pérez-Estébanez, 2017). In this regard, there is a research avenue that seeks to evaluate the effects of CL on students' attitudes and on the acquisition of generic skills (Ballantine & Larres, 2007, 2009; Delgado-Hurtado & Castrillo-Lara, 2015). Some authors have pointed out that CL fosters diversity and interpersonal relationships (Cottell & Millis, 1992; Pérez-Estébanez, 2017; Van der

Laan Smith & Spindle, 2007). Moreover, greater student involvement or engagement is achieved (Adler & Milne, 1997; Ramsay et al., 2000; Ravenscroft et al., 1995), as well as an improvement in communication and group building skills (Caldwell et al., 1996; Mills & Woodall, 2004; Van der Laan Smith & Spindle, 2007). Furthermore, empirical studies confirm advances in academic performance and motivation to learn (Clinton & Kohlmeier, 2005; Pérez-Estébanez, 2017; Vreven & McFadden, 2007). Thereby, there is a large body of research supporting the effectiveness of CL (Johnson et al., 2000).

## 2.2. Cooperative learning in the accounting discipline

Accounting researchers have confirmed that professional success requires specific skills (Birmenbaum, 1996; Gammie & Matson, 2007; Peek, Winking & Peek, 1995). Oral and written communication facilities, critical thinking abilities, interpersonal talent and the capacity to work in groups are some of the most valuable skills in the accounting profession (Dyball et al., 2007; Strand-Norman et al., 2004). Other disciplines, such as computer science (e.g. Bower & Richards, 2006), marketing (e.g. Chapman & Van-Auken, 2001), and mathematics (e.g. Hossain & Tarmizi, 2013), have considered those skills as potentially beneficial consequences of using CL. However, in the accounting research field, previous studies evaluating the effects of CL are not conclusive at all (Clinton & Kohlmeier, 2005; Lancaster & Strand, 2001; Pérez-Estébanez, 2017).

Part of the literature did not find improvements in students' academic performance as a consequence of using CL structures (Lancaster & Strand, 2001; Marcheggiani, Urdyke & Sander, 1999; Ravenscroft et al., 1997). In this sense, Clinton and Kohlmeier (2005) investigated the effect of group quizzes on accounting students' academic performance. Upon analysing 146 undergraduate accounting students, their results revealed a lack of performance differences between students working in groups and students using traditional learning. Additionally, they proved that different alternatives in the group setting-up, such as long-term vs. ad hoc groups, or self-selected vs. instructor assigned groups, did not explain differences in academic performance. However, they noted that students in a CL environment showed greater motivation to learn, demonstrating that the amount of learning is greater when CL techniques are employed. Similarly, a more recent study, conducted by Pérez-Estébanez (2017) with a sample of first-year students of the Computer Science Degree attending a Financial Accounting course, confirmed the lack of academic performance differences between two samples of undergraduate students, one using CL structures and the other using traditional learning techniques. Additionally, the author compared the results in both samples in mid-term and in final exams. Surprisingly, while results in the mid-term exam were better in the traditional learning sample, students involved in CL improved their results in the final exam, in comparison to the former group. This finding supports the belief that students acquire better academic comprehension and knowledge by using CL techniques.

In contrast to most of the research cited in the above paragraph and in line with the concluding remark, some studies do support the positive effects of CL on students' academic performance in accounting subjects (Hwang et al., 2005; Hwang, Lui & Tong, 2008; Ravenscroft et al., 1995). Regarding the potential benefits of CL, Dyball et al. (2007) conducted a research in Australia showing that students considered CL to be a positive experience and a vehicle to de-



velop attributes for the labour world. Moreover, [Dyball et al. \(2010\)](#) underlined the positive effect of CL in achieving a more profound approach to learning. Furthermore, [Hwang et al. \(2005\)](#) demonstrated that those students that were taught using a CL approach perform significantly better than those who were taught using a traditional lecture format. And, finally, in the Spanish context, [Delgado-Hurtado and Castrillo-Lara \(2015\)](#) found a positive effect of CL on students' academic outcomes, controlling for students' dedication and motivation.

Summarizing, although previous literature has highlighted the importance of CL in the accounting discipline, the existing results regarding its consequences are mixed. Therefore, several authors (e.g. [Dyball et al., 2007, 2010](#); [Strand-Norman et al., 2004](#)) have highlighted the need to stimulate further research regarding the implications of CL. Specifically, [Hillyard et al. \(2010\)](#) and [Payne and Monk-Turner \(2006\)](#) emphasized the importance of considering students' attitudes and perceptions towards working in groups on their academic outcomes. Thus, in the next epigraph, students' considerations regarding group working under the CL approach, and its effects on their academic performance are analysed.

### 3. Prior experiences with working in groups, students' perceptions towards group working and academic performance

Previous experiences with CL, namely through working in groups, may affect students' perceptions and attitudes towards group working and, therefore, their academic performance ([Hillyard et al., 2010](#); [Herrmann, 2013](#)). In this vein, positive ([Hite, 1996](#); [Ravenscroft et al., 1995](#); [Strand-Norman et al., 2004](#)), negative ([Ravenscroft et al., 1997](#); [Zariski, 1997](#)) and even non-significant relationships ([Boekaerts, 2002](#); [Hossain & Tarmizi, 2013](#); [Vreven & McFadden, 2007](#)) have been found between previous experiences with working in groups and students' academic outcomes.

For instance, [Gatfield \(1999\)](#) found a significantly higher satisfaction among students with previous group work experience than among those who had not previously worked in groups. Moreover, [Drury, Kay and Losberg \(2003\)](#) revealed, in general, positive group work experiences among their sampled students; however, they also found that another minority group of students had unsatisfactory group work experiences. In this regard, dissatisfaction from previous bad experiences may influence students' future work in groups ([Forrest & Miller, 2003](#); [Lizzio & Wilson, 2005](#)), giving rise to a poorer academic performance ([Hng, Bulte & Pilot, 2017](#)). On the other hand, [Boekaerts \(2002\)](#) showed that previous group working experiences, per se, were not related to students' perceptions concerning the benefits of groups.

As stated above, controversial findings have been found regarding the relationship between previous experience with working in groups and future group work. Altogether, the existing literature fails to clearly identify whether this previous experience influences students' attitudes and perceptions towards future group work and thus, their academic performance.

Therefore, the following subsections analyse how different characteristics related to prior expertise and students' perceptions regarding their previous work in groups may influence their academic performance.

#### 3.1. Improved skills

Working in groups generates different advantages that might impact on certain skills such as higher interaction with group members, greater individual learning and critical thinking, higher improvement in written and oral communication and greater student responsibility, among others ([Ruiz-Gallardo, Castaño, Gómez-Alday & Valdés, 2011](#)).

In this vein, previous literature argued that students who had worked in groups acquired more knowledge, more skills and better academic performance than others who had previously only worked alone ([Strand-Norman et al., 2004](#)). Accordingly, [Adler and Milne \(1997\)](#) showed that working in groups helps to increase relevant personal skills demanded by professionals, employers and universities.

By contrast, [Ravenscroft et al. \(1997\)](#) revealed that there was a slight or non-existent improvement on students' performance due to the developed skills arising from having worked in groups.

According to the abovementioned arguments, most studies seem to emphasize the positive effects of having worked in groups on students' group working abilities, and therefore, on their academic outcomes.

#### 3.2. Leading role

Although group working involves leaderless groups ([Burdett & Hastie, 2009](#)), it is common in practice that one student (sometimes more than one) takes the initiative and becomes more responsible for the group work ([Mills, 2003](#)).

The leading role has been expected to be negatively associated with group work satisfaction ([Burdett & Hastie, 2009](#)), inasmuch as dominant group members might prevent other group members from working to their own full potential ([Johnson & Johnson, 1984](#)). Conversely, [Pescosolido \(2001\)](#) found a positive influence of group leaders on group efficacy, which in turn, had a positive effect on later group performance ([Johnson & Johnson, 1984](#)). Meanwhile, [Pfaff and Huddleston \(2003\)](#) made a distinction between students who consider themselves leaders and students who are either passive or dominant, with the former having positive attitudes toward group work and the latter (both passive and dominant) exhibiting negative attitudes toward group work.

Therefore, the existing literature is controversial regarding the effect that students' perceptions with regard to having assumed a leading role in prior group working exert on their academic performance.

#### 3.3. Learning from others

Previous research argued that students who have worked in groups learn more about themselves and others because of their shared understanding and thoughts and because they brief each other ([Adler & Milne, 1997](#)). In this vein, [Ickes and Gonzalez \(1994\)](#) showed that group members learn from both their own experience and the experiences of other group members. In this regard, [Tempone and Martin \(1999\)](#) concluded that working in groups and carrying out tasks between group members, such as debates, exchanges of ideas and brainstorming exercises, allow students to improve their knowledge. Furthermore, [Ciccotello, D'Amico & Grant, \(1997\)](#) and [Hite \(1996\)](#) also found that working in groups allows students to learn from other group members in such a way that the collective final results are of higher quality than individual work.

Nevertheless, there are some researchers (e.g. [Ramsay et al., 2000](#)) highlighting that certain students, namely the

brightest ones, prefer to work individually rather than in groups. These brightest students believe that they have enough knowledge and skills to operate by themselves and think that they do not learn anything from other group members. Similarly, Park (2001) argued that high ability students prefer to learn alone through individual learning and not to share their knowledge with their peers. Furthermore, Collison (2000), using a sample of elementary school students, found that students' preferences to learn depend on their level of ability; that is, brighter students prefer to learn by themselves in a self-direct way rather than learning with group members. Consequently, working in groups may affect brighter students' academic performance inasmuch as they do not develop positive interdependence with other students. In this context, Marton and Saljo (1976) and Ramsden (1992) argued that group members' intentions and approaches are key issues to consider when they have to perform in groups. Thus, if group members do not understand a learning task as a useful assignment or do not capture the importance of developing their work in groups, they would not engage their duties in a correct way and therefore, their academic performance would be damaged.

Accordingly, it seems that students do not always perceive that working in groups enables them to learn from other group members, and thus may consider that it does not necessarily lead to better results than those obtained when working individually.

#### 4. Research questions

Based on the abovementioned arguments, some research questions are proposed.

First, and due to the fact that most studies emphasize the positive effects that having worked in groups exert on students' abilities, the following research question is suggested:

**RQ1:** Do students' perceptions regarding their improved skills due to having worked in groups exert an impact on their academic performance?

Second, due to the controversial results regarding the effect of students' perceptions of having played a leading role on their acquired skills, the following research question is proposed:

**RQ2:** Do students' perceptions of having played a leading role in previous group work experiences have an impact on their academic performance?

And, third, it is argued that students do not always perceive that working in groups allows them to learn from other group members, and does not necessarily lead to better results than those obtained when working individually. Thus, the abovementioned arguments lead to the following research question:

**RQ3:** Do students' perceptions of having learnt from other group members in previous group work have an impact on their academic performance?

#### 5. Method

##### 5.1. The assessed group work

A compulsory assessed group work was introduced in accounting subjects belonging to the third course of the Business Administration Degree in three different universities (University of Zaragoza, Teruel Campus; University of Castilla-La Mancha, Cuenca Campus; and University of Almería). On the one hand, Business Administration is one

of the degrees in which accounting has more relevance (Arquero & Fernández-Polvillo, 2019). Accordingly, there are numerous studies, both national and international, that analyse accounting teaching topics in the field of the Business Administration Degree (for example, Alonso-Almeida, Fernández De Navarrete & Rodríguez-Pomeda, 2015; Palazuelos, San-Martín, Montoya del Corte & Fernández-Laviada, 2017; Tormo-Carbó, Seguí-Mas & Oltra, 2016)<sup>1</sup>. On the other hand, distinct Universities were selected to explore whether differences among higher education institutions, for example in terms of age, size and location, affect the proposed research questions, on the basis that the chosen Universities possess differential characteristics. In addition, the lecturers of those universities collaborate on common educational innovation projects, whose aim is to investigate cooperative learning techniques in the accounting discipline.

The same teaching methodology was implemented in the three subjects in order to compare its effectiveness among different universities, as well as to control whether there was an effect based on the university itself. Furthermore, all subjects contemplate, both in the official degree syllabus and in the teaching guide, the abilities to work in teams and to make public presentations, as competences that will be evaluated during the course.

At the beginning of the semester, students self-selected their groups of three students. Previous research has demonstrated that self-selected groups outperform teacher-assigned groups (Chapman, Meuter, Toy & Wright, 2006; Dyball et al., 2007; Strand-Norman et al., 2004). Moreover, as students were in their third course of Business Administration, they have had previous experience with group working, and consequently, most of them have a pre-established group to work with. In this regard, prior studies have shown that the continuity of group interaction improves CL (Ballantine & Larres, 2007; Cuseo, 1992). In addition, Van der Laan Smith and Spindle (2007) revealed that students perceive that self-selected groups lead to better results than instructor-formed groups. Furthermore, free-riding, which could be considered one of the main conflicts arising when working in groups, might be reduced by employing small groups of two to four members (Strand-Norman et al., 2004; Strong & Anderson, 1990). In line with the above, some authors argue that the ideal group size is three or four members (Gillies, 2003; Oakley, Felder, Brent & Elhaji, 2004). Finally, small groups allow students to raise more questions, to exhibit more agreement, and to interchange more opinions (Dyball et al., 2007; Samson & Daft, 2003).

Each group, in the three accounting subjects, were required to prepare and defend an essay, based on a practical application of the subject contents. At the end of the semester, each group was required to deliver a written essay, to demonstrate the results through a poster and to answer the questions asked by the instructor. During the presentation, all group members were required to present a part of the poster and to answer some questions from the instructor. Each group member was given the same grade for the written essay and the poster, but each one was individually graded for the presentation and for the responses given to the instructors' questions. In order to promote group interdependence and in an attempt to reduce 'free-riding' problems, students only find out the part of the essay that each group member has to defend at the time of the presentation, and they may be required to answer questions about any of the essay con-

<sup>1</sup>The latest CRUE report 'La universidad española en cifras' states that there are 82 degrees of Business Administration in Spain and that the average demand for this degree is 760 students (CRUE, 2017).

tent. This strategy prevents students from sharing the work content and from only knowing a specific part of the essay.

### 5.2. Research design, sample and data collection

As the main purpose of this research is to analyse whether previous experiences in group working are associated with students' academic performance, it is necessary to measure students' individual academic performance as well as students' perceptions based on previous experience with working in groups.

Academic performance was measured using the individual grade of the group work, formed by the common group grade of the written essay and the individual grade of the presentation and defending. By utilizing this measure, attention is focused on testing the impact of the group working methodology on students' group working outcomes (Dröge & Spreng, 1996; Ravenscroft, Buckless, McCombs & Zuckerman, 1995; Takeda & Homberg, 2014).

In addition, an initial questionnaire was given at the beginning of the semester to gather demographic data and students' perceptions regarding their previous experience with working in groups before undertaking the actual experience in group working (Calabor, Mora & Moya, 2018).

The questionnaire was designed incorporating, firstly, questions conducted to determine demographic data, such as university, age, gender, university entrance grade and class attendance among others. Students were also asked whether they had previously been involved in group work and the final sample only considered those who had already participated in group working. Finally, questions related to previous experiences with working in groups were scaled using 5-point Likert design anchored responses, where 1 signified "strongly disagree" and 5 "strongly agree". The questionnaire design was based on instruments which had been previously used to evaluate group working in accounting subjects. Specifically, the selected questionnaires to measure aspects of CL were validated in previous literature (Bonanno, Jones & English, 1998; Dyball et al., 2007, 2010) and published in high-impact journals in the accounting field, namely in the accounting education discipline, such as *Journal of Accounting Education*, *Teaching in Higher Education* and *Accounting Education*. Moreover, to the extent that the teamwork competence can be considered cross-sectional, not specific to business sciences degrees, nor in particular to accounting degrees, the questionnaires applied in other countries or environments could be extrapolated to the Spanish university context. Questions related to students' perceptions regarding previous experiences with group work were linked to the skills that the students think that they have developed due to the fact of having worked in groups, to the students' role in the group (whether they have played a leading role or not) and to the students' perceptions about their learning from their group members.

Following Calabor et al. (2018), once the questionnaires were developed, their validity was verified both in terms of content and the scales used. In this regard, the opinion of students and lecturers who had used the working in group technique in alternative subjects/degrees, without any connection with this experience, was asked, in order to assess the measures used, the clarity of the instructions and the content of the questions. Their evaluations, comments and recommendations were incorporated into the final wording of the questionnaires.

There were initially 205 students enrolled in the three subjects (23 in University of Zaragoza, 58 in University of

Castilla-La Mancha and 124 in University of Almería), but in the end 144 students completed both the final exam and the questionnaire, which reflects response percentages higher than 60% (78% in University of Zaragoza, 84% in University of Castilla-La Mancha and 64% in University of Almería).

### 5.3. Model specification and variable measurement

Given that our research questions are all concerned with possible associations between students' perceptions regarding previous experiences with group working and their academic performance, the model for testing these research questions is of the following form:

$$Ac.Perf = \alpha + \beta_1 UZ + \beta_2 UAL + \beta_3 AGE + \beta_4 GEN + \beta_5 UEG + \beta_6 CA + \beta_7 SK + \beta_8 LR + \beta_9 LFO + \varepsilon$$

The rationale for the inclusion of the different variables is explained below, while the measurement of the variables is shown in Table 1.

The dependent variable, Academic performance (*Ac.Perf*), is the individual academic performance, measured as previously stated, using the student's individual grade earned in the work in-group.

Given that our research has been conducted at three different universities with quite distinct characteristics, including variables to control for possible differences in students' academic outcomes depending on the university is considered necessary. *UZ* and *UAL* represent the University of Zaragoza and the University of Almería, respectively.

Previous studies argued that academic performance may be influenced by some respondents' socio-demographic, personal and academic factors (Delgado-Hurtado & Castrillo-Lara, 2015; Gracia & Jenkins, 2003). In that sense, there is some support in the literature for including students' ages (*AGE*) (Byrne & Flood, 2008; Duff, 2004; Van der Laan Smith & Spindle, 2007). Besides, previous research has also considered gender (*GEN*) as a determinant of academic success (Byrne & Flood, 2008; Duff, 2004; Koh & Koh, 1999). In the same way, previous studies in accounting education indicated that prior academic performance is related to current students' academic performance (García-Jiménez, Izquierdo & Jiménez-Blanco, 2000; Lizzio & Wilson, 2005). Therefore, to consider that relationship, university entrance grade (*UEG*) was used, which is considered a capacity measure and, thus, a good proxy for prior grades (de Liaño, León & Pascual-Ezama, 2012; Sánchez-Martín, Pascual-Ezama & Delgado-Jalón, 2017). Moreover, class attendance (*CA*) might influence students' academic performance, so the percentage of students' class attendance was included in the model.

Finally, as previously mentioned, three characteristics were used to analyse students' perceptions regarding previous experiences with working in groups, namely *skills* (*SK*), *leading role* (*LR*) and *learning from others* (*LFO*). These characteristics were considered independent variables in the model, because this investigation aims to analyse their individual effects on students' academic performance.

Table 1 summarizes the measurement of dependent, independent and control variables.

## 6. Results

### 6.1. Descriptive results

The descriptive statistics of the whole sample and the differences between the three universities in which the study



**Table 1**  
Variable definition

| Variables  | Definition / Question in the survey  |
|--|--|
| <b>Dependent variable</b>                              |  |
| Academic performance (Ac. Perf)                        | Individual grade earned in the assessed group work   |
| <b>Control variables</b>                               |  |
| University of Zaragoza, Teruel Campus (UZ)             | Dummy variable, which equals one when the University is University of Zaragoza and zero otherwise  |
| University of Castilla-La Mancha, Cuenca Campus (UCLM) | Dummy variable, which equals one when the University is University of Castilla-La Mancha and zero otherwise  |
| University of Almería (UAL)                            | Dummy variable, which equals one when the University is University of Almería and zero otherwise   |
| Students' Age (AGE)                                    | Natural logarithm of the student's age   |
| Gender (GEN)   | Dummy variable which takes the value zero if the student is male and the value one if the student is female  |
| University entrance grade (UEG)                        | Individual grade obtained in the compulsory exams to access to the University. This variable takes values from one to four. One if the entrance grade was from 5 to 6.9; two if the entrance grade was from 7 to 8.9; three if the entrance grade was from 9 to 10; and four, if the entrance grade was higher than 10. The highest possible grade is 14 |
| Class attendance (CA)                                  | The student's class attendance percentage. This variable takes values from one to five. One if attendance is from 0 to 24.9%; two if attendance is from 25% to 49.9%; three if attendance is from 50% to 74.9%; four if attendance is from 75% to 90%; and five if attendance is higher than 90%   |
| <b>Independent variables</b>                           |  |
| Skills (SK)  | Answer to the 5-point Likert question: "CL has improved my skills regarding group working"   |
| Leading role (LR)                                      | Answer to the 5-point Likert question: "In the tasks carried out, I have played a leading role"  |
| Learning from others (LFO)                             | Answer to the 5-point Likert question: "CL has allowed me to learn from other group members and the final results were of higher quality than those from individual work"  |

has been developed are shown in Table 2. First, regarding the dependent variable, it should be highlighted that undergraduate students achieve an academic performance, on average, of around seven points, without substantial differences between the analysed universities (6.18 in UZ; 7.71 in UCLM; 7.42 in UAL).

Second, with respect to the control variables, it can be argued that the students' university entrance grades were not very high in any of the analysed universities, with mean values lower than nine over a total of fourteen points. UAL has the highest students' university entrance grade. This finding might be explained due to, UAL is, of the three analysed universities, the one with the highest required entrance grade to enroll the Business Administration degree. Moreover, as mentioned above, participants are studying subjects in the third course of their bachelor degrees, so they are, on average, 22 years old, ranging from 20 to 32. Additionally, the sample students attend, on average, to more than 75% of the classes (Table 2, Panel A). In this regard, UZ has the highest value for class attendance (around 90%), follow by UAL (between 75 and 90%), and finally by UCLM (below 75%). It is important to highlight that in UZ, the average class size is relatively reduced, and consequently, the teaching relationship is very personalized, which might promote increased class attendance. Moreover, in both UZ and UAL, class attendance is mandatory, in contrast to UCLM, where it is not. Therefore, this may be a reason for the minor value of class attendance in UCLM. Regarding the gender, the findings reveal that, on average, the percentage of females is 67% in UZ, 53% in UCLM and 63% in UAL. Thus, the presence of females is higher than that of males in all three universities. This pattern is similar to that of prior research developed among students enrolled

in business and management degrees (Larrán, Andrades & Herrera, 2018), in which females are more numerous.

Regarding the independent variables, all indicators exceeded the scale midpoint, which is located at 2.5. Thereby, students are considered to be satisfied with their previous experiences in group working. Accordingly, Table 2 Panel B shows that students, on average, consider that their previous experiences with working in groups helped them to improve their teamwork abilities (3.78 in UZ; 3.69 in UCLM; 3.65 in UAL). Besides, they also consider, based on their previous experience, that group working allows them to learn from other group members and that the obtained results are of higher quality than those they would have achieved by working individually (4.06 in UZ; 3.54 in UCLM; 3.90 in UAL). The highest figure of UZ in both items, i.e. improved teamwork abilities and having learnt from others, might be related to the abovementioned smaller class size, which encourages, on the one hand, a more personalized instructor-student relationship and on the other hand, more interactions and strong relationships among students (Hassan, Fox & Hannah, 2014; Voynova, 2017). Finally, students consider that they played a leading role when they had been working in groups. Namely, students from UCLM present the highest values (3.19) followed by students from UAL (3.03) and students from UZ (2.94). These results suggest that students from UCLM consider that they have played leading roles in more occasions than students from UZ and UAL, when they worked in groups.

Table 3 provides the Pearson's bivariate correlation analysis to investigate the degree of linear relationship between the variables (Arquero, Fernández-Polvillo, Hassall & Joyce, 2017; Yao & Chiang, 2011). This correlation matrix reveals that there is a positive and significant correlation between the university entrance grade and the students' academic performance. Moreover, the correlation matrix shows that students' perception regarding having learnt from others when previously working in groups is negatively and significantly related to their academic performance.

The findings show no multicollinearity concerns to the extent that correlations between variables are lower than 0.7 in all cases (Tabachnick & Fidell, 1996), which suggests that the variables have discriminant validity (Cohen, 1994). Moreover, variance inflation factor (VIF) tests were conducted to verify the absence of multicollinearity. The results were satisfactory, as all values were between 1.11 and 1.58. Therefore, there is sufficient evidence to rule out multicollinearity (Hair, Anderson, Tatham & Black, 1999).

## 6.2. Research questions analysis

Table 4 reveals the regression results. Model 1 is the baseline model that only includes control variables. The independent variables are entered in Model 2.

Following prior literature (Blinc, Perreault & Zheng, 2016; Ramsay et al., 2000), Model 1 analyses whether students' academic performance is related to socio-demographic, personal or academic factors. In this vein, our findings show that using UCLM as the reference category, both students from UZ and students from UAL have lower academic performance ( $\beta = -1.681$ ;  $p < 0.001$  and  $\beta = -0.526$ ;  $p < 0.05$ , respectively) than those from UCLM. Interesting is the fact that such difference in students' academic performance, is lower between UCLM and UAL, in both of which, the Business Administration degree is taught for more than 18 years, in comparison with UZ, which implemented the degree 8 years ago. Additionally, such lower difference in between UCLM and UAL,

**Table 2**  
Descriptive results.

| Panel A. Dependent and control variables |                        |      |       |                                  |      |       |                       |      |       |       |      |       |
|--|------------------------|------|-------|----------------------------------|------|-------|-----------------------|------|-------|-------|------|-------|
|  | University of Zaragoza |      |       | University of Castilla-La Mancha |      |       | University of Almería |      |       | TOTAL |      |       |
| N. observations                          | 18                     |      |       | 48                               |      |       | 78                    |      |       | 144   |      |       |
| Dependent variable                       | Mean                   | SD   | Freq  | Mean                             | SD   | Freq  | Mean                  | SD   | Freq  | Mean  | SD   | Freq  |
| Academic performance                     | 6.18                   | 0.82 |       | 7.71                             | 1.23 |       | 7.42                  | 0.89 |       | 7.37  | 1.11 |       |
| Control variables                        |                        |      |       |                                  |      |       |                       |      |       |       |      |       |
| Age                                      | 22.39                  | 7.92 |       | 21.82                            | 3.78 |       | 22.25                 | 3.41 |       | 22.12 | 3.47 |       |
| Gender                                   | 0.67                   | 0.49 |       | 0.53                             | 0.50 |       | 0.63                  | 0.49 |       | 2.10  | 0.91 |       |
| University entrance grade                | 1.94                   | 0.80 |       | 1.82                             | 0.88 |       | 2.30                  | 0.91 |       | 0.60  | 0.49 |       |
| 1: 5 - 6.9                               |                        |      | 27.8% |                                  |      | 43.8% |                       |      | 15.4% |       |      | 26.4% |
| 2: 7 - 8.9                               |                        |      | 55.6% |                                  |      | 39.6% |                       |      | 55.1% |       |      | 50.0% |
| 3: 9 - 10                                |                        |      | 11.1% |                                  |      | 12.5% |                       |      | 15.4% |       |      | 13.9% |
| 4: > 10                                  |                        |      | 5.6%  |                                  |      | 25.0% |                       |      | 15.4% |       |      | 11.1% |
| Class attendance                         | 4.78                   | 0.55 |       | 3.98                             | 1.22 |       | 4.66                  | 0.64 |       | 4.45  | 0.92 |       |
| 1: 0-24.9%                               |                        |      | 0.0%  |                                  |      | 6.3%  |                       |      | 0.0%  |       |      | 2.1%  |
| 2: 25-49.9%                              |                        |      | 0.0%  |                                  |      | 8.3%  |                       |      | 1.3%  |       |      | 3.5%  |
| 3: 50-74.9%                              |                        |      | 5.6%  |                                  |      | 12.5% |                       |      | 5.1%  |       |      | 7.6%  |
| 4: 75-90%                                |                        |      | 11.1% |                                  |      | 29.2% |                       |      | 20.5% |       |      | 22.2% |
| 5: > 90%                                 |                        |      | 83.3% |                                  |      | 45.8% |                       |      | 74.4% |       |      | 65.9% |
| Panel B. Independent variables           |                        |      |       |                                  |      |       |                       |      |       |       |      |       |
|  | University of Zaragoza |      |       | University of Castilla-La Mancha |      |       | University of Almería |      |       | TOTAL |      |       |
|  | Mean                   | SD   | Freq  | Mean                             | SD   | Freq  | Mean                  | SD   | Freq  | Mean  | SD   | Freq  |
| Skills                                   | 3.78                   | 1.06 |       | 3.69                             | 0.97 |       | 3.65                  | 0.98 |       | 3.68  | 0.98 |       |
| 1  |                        |      | 0.0%  |                                  |      | 0.0%  |                       |      | 2.6%  |       |      | 1.4%  |
| 2  |                        |      | 16.7% |                                  |      | 16.7% |                       |      | 10.3% |       |      | 13.2% |
| 3  |                        |      | 16.7% |                                  |      | 16.7% |                       |      | 24.4% |       |      | 20.8% |
| 4  |                        |      | 38.9% |                                  |      | 47.9% |                       |      | 44.9% |       |      | 45.1% |
| 5  |                        |      | 27.8% |                                  |      | 18.8% |                       |      | 17.9% |       |      | 19.4% |
| Leading role                             | 2.94                   | 0.80 |       | 3.19                             | 1.04 |       | 3.03                  | 1.14 |       | 3.07  | 1.07 |       |
| 1  |                        |      | 5.6%  |                                  |      | 6.3%  |                       |      | 9.0%  |       |      | 7.6%  |
| 2  |                        |      | 16.7% |                                  |      | 18.8% |                       |      | 25.6% |       |      | 22.2% |
| 3  |                        |      | 55.6% |                                  |      | 33.3% |                       |      | 29.5% |       |      | 34.0% |
| 4  |                        |      | 22.2% |                                  |      | 33.3% |                       |      | 25.6% |       |      | 27.8% |
| 5  |                        |      | 0.0%  |                                  |      | 8.3%  |                       |      | 10.3% |       |      | 8.3%  |
| Learning from others                     |                        |      |       |                                  |      |       |                       |      |       |       |      |       |
| 1  |                        |      | 0.0%  |                                  |      | 10.4% |                       |      | 1.3%  |       |      | 4.2%  |
| 2  |                        |      | 5.6%  |                                  |      | 8.3%  |                       |      | 5.1%  |       |      | 6.3%  |
| 3  |                        |      | 22.2% |                                  |      | 25.0% |                       |      | 21.8% |       |      | 22.9% |
| 4  |                        |      | 33.3% |                                  |      | 29.2% |                       |      | 46.2% |       |      | 38.9% |
| 5  |                        |      | 38.9% |                                  |      | 27.1% |                       |      | 25.6% |       |      | 27.8% |

**Table 3**  
Pearson's bivariate correlations

|                                    | 1         | 2         | 3         | 4        | 5         | 6        | 7       | 8     | 9        | 10    | 11   |
|------------------------------------|-----------|-----------|-----------|----------|-----------|----------|---------|-------|----------|-------|------|
| 1 Academic performance             | 1         |           |           |          |           |          |         |       |          |       |      |
| 2 University of Zaragoza           | -0.406*** | 1         |           |          |           |          |         |       |          |       |      |
| 3 University of Castilla-La Mancha | 0.229***  | -0.267*** | 1         |          |           |          |         |       |          |       |      |
| 4 University of Almería            | 0.053     | -0.411*** | -0.469*** | 1        |           |          |         |       |          |       |      |
| 5 Age                              | -0.054    | 0.026     | -0.057    | 0.037    | 1         |          |         |       |          |       |      |
| 6 Gender                           | 0.093     | 0.043     | -0.101    | 0.067    | -0.150*   | 1        |         |       |          |       |      |
| 7 University entrance grande       | 0.205**   | -0.064    | -0.238*** | 0.267*** | -0.305*** | 0.133    | 1       |       |          |       |      |
| 8 Class attendance                 | -0.030    | 0.134     | -0.342*** | 0.235*** | -0.164**  | 0.152*   | 0.166** | 1     |          |       |      |
| 9 Skills                           | 0.058     | 0.038     | 0.005     | -0.030   | -0.064    | -0.013   | -0.114  | 0.032 | 1        |       |      |
| 10 Leading role                    | 0.067     | -0.044    | 0.078     | -0.045   | 0.010     | 0.216*** | 0.058   | 0.039 | 0.168**  | 1     |      |
| 11 Learning from others            | -0.141*   | 0.093     | -0.173**  | 0.103    | -0.103    | -0.031   | -0.082  | 0.032 | 0.509*** | 0.181 | 1    |
| VIF                                |           | 1.58      | 1.45      | 1.37     | 1.22      | 1.29     | 1.21    | 1.11  | 1.38     | 1.14  | 1.48 |

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level.



might be related with the fact that, in terms of number of students enrolled in the Business Administration degree, those universities are both bigger than UZ. Furthermore, the findings show that university entrance grades are positively and significantly ( $\beta = 0.286$ ;  $p < 0.001$ ) related to the students' academic performance. Age and gender do not exert a significant impact on student's academic performance ( $\beta = 0.020$ ; n.s. and  $\beta = 0.231$ ; n.s., respectively). Neither class attendance has a significant influence on the dependent variable ( $\beta = 0.059$ ; n.s.). Model 1 is significant ( $F = 7.33$ ;  $p < 0.001$ ) and the variables explain 24% ( $R^2$ ) of the variation in students' academic performance.

**Table 4**  
Regression models

|                              | Dependent variable: Academic performance |                   |             |                   |
|------------------------------|--|-------------------|-------------|-------------------|
|                              | Model 1                                  |                   | Model 2     |                   |
|                              | Coefficient                              | T statistic value | Coefficient | T statistic value |
| <b>Control variables</b>     |  |                   |             |                   |
| University of Zaragoza       | -1.681***                                | -6.45             | -1.603***   | -6.23             |
| University of Almería        | -0.526**                                 | -2.32             | -0.451**    | -2.01             |
| Age                          | 0.020                                    | 1.02              | 0.017       | 1.00              |
| Gender                       | 0.231                                    | 1.26              | 0.239       | 1.28              |
| University entrance grade    | 0.286***                                 | 2.88              | 0.280***    | 2.82              |
| Class attendance             | 0.059                                    | 0.63              | 0.053       | 0.59              |
| <b>Independent variables</b> |  |                   |             |                   |
| Skills                       |  |                   | 0.190**     | 2.30              |
| Leading role                 |  |                   | 0.044       | 0.58              |
| Learning from others         |  |                   | -0.152*     | -1.77             |
| Constant                     | 6.420***                                 | 9.19              | 6.205***    | 7.71              |
| R <sup>2</sup>               | 0.243                                    |                   | 0.268       |                   |
| Adjusted R <sup>2</sup>      | 0.210                                    |                   | 0.219       |                   |
| ANOVA (F statistic value)    | 7.33***                                  |                   | 5.45***     |                   |

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level.

Model 2, which introduces the effect of students' perceptions regarding having previously worked in groups, reveals the regression results of our main model. Specifically, Model 2 reveals how students' opinions with respect to having acquired skills, having played a leading role and having learnt from others, affect their academic performance. The control variables behave similarly than in Model 1. That is, the university entrance grade is positively and significantly ( $\beta = 0.280$ ;  $p < 0.001$ ) related to students' academic performance, and students from UZ and from UAL have a poorer academic performance ( $\beta = -1.603$ ;  $p < 0.001$  and  $-0.451$ ;  $p < 0.05$ ) than students from UCLM.

When focusing on the independent variables, the results reveal that students' perceptions regarding their improved abilities resulting from having worked in groups exert a positive and significant impact on their academic performance ( $\beta = 0.190$ ;  $p < 0.05$ ). Thus, the answer to RQ1 is, yes, students' considerations of their improved skills due to previous experiences with group working, positively influences their academic performance. Model 2 also indicates a positive, although non-significant, impact of students' perceptions of having assumed a leading role on their academic performance. Hence, as an answer to RQ2, students' perceptions of having behaved as leaders in previous group working experiences do not exert a significant impact on their academic performance. With regard to RQ3, the findings present a negative and significant influence of students' perceptions regarding having learnt from others on students' academic performance ( $\beta = -0.152$ ;  $p < 0.1$ ). Thus, the answer to RQ3 is yes, perceptions of having learnt from other group members in previous group work negatively influence students'

academic outcomes.

Finally, Model 2 indicates that the overall model is significant ( $F = 8.76$ ;  $p < 0.001$ ) and the variables explain 26.8% ( $R^2$ ) of the variations in students' academic performance.

### 6.3. Robustness checks

In this section, an alternative regression model is run to check the robustness of the findings (Table 5). In this case, academic performance was measured through an alternative dependent variable, i.e. the individual grade achieved in the course (*Individual academic grade*), as some studies have done in previous literature (Gammie & Matson, 2007; Van der Laan Smith & Spindle, 2007). The individual academic grade was measured as the weighted average of different activities developed through the course, i.e. the work in group (30%), which involves the essay, different exercises and the public presentation of the complete work, and the final exam (70%). In this vein, it should be highlighted that the same weight was given to the different activities that comprise the total individual academic grade in all the analysed universities, in order to have a homogeneous academic performance measure.

**Table 5**  
Robustness Checks

|                              | Dependent variable: Individual Academic Grade |                   |
|------------------------------|---|-------------------|
|                              | Model 3                                       |                   |
|                              | Coefficient                                   | T statistic value |
| <b>Control variables</b>     |   |                   |
| University of Zaragoza       | -1.210***                                     | -4.14             |
| University of Almería        | 0.005   | 0.02              |
| Age                          | 0.029   | 1.42              |
| Gender                       | -0.054  | -0.26             |
| University entrance grade    | 0.414***                                      | 3.87              |
| Class attendance             | 0.193*  | 1.84              |
| <b>Independent variables</b> |   |                   |
| Skills                       | 0.193**                                       | 2.07              |
| Leading role                 | 0.082   | 1.02              |
| Learning from others         | -0.171*                                       | -1.72             |
| Constant                     | 4.462***                                      | 4.92              |
| R <sup>2</sup>               | 0.266   |                   |
| Adjusted R <sup>2</sup>      | 0.217   |                   |
| ANOVA (F statistic value)    | 8.60***                                       |                   |

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level.

With this in mind, results remain consistent with the previous findings. First, starting with the control variables, the regression results show that university entrance grade and class attendance are positively and significantly ( $\beta = 0.414$ ;  $p < 0.001$  and  $\beta = 0.193$ ;  $p < 0.1$ ) related to students' individual academic grade. Besides, taking UCLM as the reference category, it can be argued that students from UZ obtain lower individual academic grades ( $\beta = -1.210$ ;  $p < 0.001$ ) than their peers from UCLM.

Then, with respect to our independent variables, a significant and positive impact of students' own perceptions of improved skills resulting from having previously worked in groups on their academic performance is corroborated ( $\beta = 0.193$ ;  $p < 0.05$ ). Moreover, a negative and significant relationship regarding students' perceptions of having learnt from others and their academic performance is found ( $\beta = -0.171$ ;  $p < 0.10$ ). Furthermore, the overall model is also significant ( $F = 8.60$ ;  $p < 0.001$ ) and the  $R^2$  increases up to 26.6%

Therefore, the findings remain broadly similar to our main models suggesting that our results are robust.

## 7. Discussion

This paper examines whether previous experiences and prior perceptions of CL techniques, specifically through working in groups, are related to students' academic performance in accounting subjects at three different Spanish universities.

The empirical analyses reveal a number of interesting and relevant findings. First, this study attests that when students perceive that previous experiences with working in groups have improved their skills, they achieve a higher academic performance. Therefore, students' attitudes toward working in groups, based on previous experiences, indeed influence current group work competences (Bourner, Hughes & Bourner, 2001; Hillyard et al., 2010; Liden, Nagao & Parsons, 1986), leading to higher academic performance. Thus, if students who have previously participated in CL environments perceived that they have acquired more knowledge, have developed more skills and also have performed better than students who have not participated in group work projects (Adler & Milne, 1997; Ruiz-Gallardo et al., 2011; Strand-Norman et al., 2004), it is supposed that the former will be able to achieve higher academic performance. Thereby, it seems evident that promoting CL techniques from the first years of higher education is absolutely necessary.

Second, it appears that students' perceptions of having played a leading role do not influence their academic performance. In this vein, previous studies have revealed both positive (Johnson & Johnson, 1984; Pescosolido, 2001) and negative (Burdett & Hastie, 2009; Johnson & Johnson, 1984) relationships between having played a leading role and perceiving satisfaction with group work. Perhaps the key question here is what students understand by playing a leading role. Do students really know what being a good leader involves? Maybe, if students were aware of the implications that being a good leader have on their academic performance, they would try to improve their leading role with the intention of achieving better academic outcomes.

Third, regarding students' perceptions of having learnt from others, the findings reveal a negative and significant impact of such insight on their academic performance. It might be assumed that in previous experiences with CL approaches, students have shared understandings and thoughts, having improved their knowledge (Adler & Milne, 1997; Dyball et al., 2007; Tempone & Martin, 1999). However, it may occur that students did not really learn from their peers, although they may think they did. In these cases, their performance outcomes do not necessarily increase as the result of having worked in groups. Moreover, it can occur that group members do not perceive the importance of working in groups; in such cases, group members would not carry out the assigned tasks properly, and the final academic result could be damaged (Marton & Saljo, 1976; Ramsden, 1992). Our findings are in line with those of Hammond, Bithell, Jones & Bidgood (2010) who concluded that CL techniques help students with the social aspects of learning but do not contribute to enhancing students' skills or their assignment preparation. Furthermore, it might be the case that some students, specifically the brightest students, prefer to work individually rather than in groups, believing that they perform better when they work on their own. The brightest students may consider that they have the required knowledge to learn by themselves through individual and self-directed learning (Collison, 2000; Park, 2001), and consequently they do not positively

interact with their group members. Therefore, an effort is required on the part of the educators, to promote the advantages of CL techniques and to get students to understand what are the benefits of teaching to other group members, and even more important, of learning from their peers.

### 7.1. Contributions and practical implications

The present study contributes to the literature on students' perceptions towards CL by examining different factors related to students' previous experiences with working in groups and their influence on academic performance. In doing so, the existing literature on CL and students' academic performance is extended (Ciccotello et al., 1997; Clinton & Kohlmeier, 2005; Swanson, Gross & Kramer, 1998). In this regard, the present paper is, to the best of the authors' knowledge, the first study dealing with how students' perceptions of having worked in groups influence their academic performance. Thus, this investigation answers the call for more research on the CL-academic performance relationship by considering students' attitudes and perceptions towards working in groups (Hillyard et al., 2010).

Moreover, as far as is known, this is also the first paper that analyses CL techniques in accounting subjects by using a sample of students pertaining to three different Spanish universities. Although in other regions (e.g. Fiechtner & Davis, 1984), using samples of students from different universities is a common practice, that is not the case in Spain (for an exception see the recent study of Rivero-Menéndez, Urquía-Grande, López-Sánchez & Camacho-Miñano, 2018), where obtaining qualitative data is quite difficult. In this regard, the collaboration and sharing between three different universities enrich the findings of the present study.

Finally, our work may be considered a useful guide to help educators to understand the effects that CL may have on students and, therefore, on their academic performance.

Furthermore, our study has relevant practical implications for the academic community. In this respect, educators should be aware of how CL may improve their students' performance, so they can enhance the learning processes. Besides, CL should be applied in other contexts or scenarios where group work can be used, such as in primary and secondary schools (Gonzales & Torres, 2015; Hossain & Tarmizi, 2013; López-Mondéjar & Pastor, 2017), so that students could acquire groupwork skills before joining the university system.

### 7.2. Limitations and future research avenues

Finally, this study is not without limitations, which in turn may provide fruitful lines for future research.

First, the time period is focused only on three subjects within an academic year as was done by Bourner et al. (2001) and Mills (2003). Therefore, the cross-sectional nature of the paper is a limitation because it captures students' attitudes at only one point in time, although attitudes and perceptions might change over time. For this reason, it may be necessary to extend the time period under study, to add insights into attitude formation and its effect on students' outcomes.

Second, this article has been developed just with students enrolling the Business Administration Degree. Thus, future studies should investigate the proposed research questions in different degrees, namely in those in which accounting is especially relevant such as, for example Finance and Accounting. Additionally, academics might focus on account-

ing students of different educational levels, that is, not only undergraduate students, but also master's degree students.

Third, the sample is not very large, so further studies should be developed with more data. However, it is necessary to emphasize that the sample has a high percentage of respondents from the total population of subjects in which the CL approach has been implemented.

Fourth, it is important to bear in mind that instructors do not usually receive training in the implementation of this type of teaching methodologies. Therefore, the instructors participating in this project have had to self-learn how to implement the CL approach and, in particular, the group working technique. In this vein, it would be advisable to foster training courses for instructors regarding these types of methodologies to improve the quality of teaching and, therefore, to contribute to enhancing students' learning and their academic performance.

Finally, this study could be replicated at other universities.

## 8. Conclusion

The findings reveal that students' experiences with regard to having previously worked in CL environments do indeed have an impact on their academic performance. Specifically, students' perceptions of having improved skills due to having worked in groups is positively related to students' academic performance while students' perceptions regarding having learnt from others is negatively related to students' academic performance. Consequently, our article reveals that previous experiences and prior perceptions with CL techniques, specifically with working in groups, are related to students' academic performance in accounting subjects at Spanish Universities.

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## Conflict of interests

The authors declare no conflict of interests.

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