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<Article>

Teamwork, peer assessment and double revision of assignments as strategies for teaching quantitative research methods in Sociology

Ana-Mª Pérez-Marin, Lidia Daza-Pérez, Manuela-T. Alcañiz-Zanón

//Abstract

INTRODUCTION. Sociology and statistics are part of the study programme in many bachelor's degrees and masters, some of them not focused primarily on quantitative research methods. This is the case of specific business management programmes, where quantitative research methods in sociology appear marginally in a single subject. In such subjects, we think it is necessary to introduce innovative teaching strategies which could motivate and help students in their learning process. METHOD. Here we describe our experience and results after implementing teamwork, peer assessment and double revision of assignments as strategies for teaching quantitative methods applied to sociological research in the Sport Business Management Master (SBMM) of the University of Barcelona. RESULTS. We observed that the grades for teamwork activities are positively correlated among themselves and that the individual grades on peer-assessment activities help to distinguish between higher and lower performing students, because they are positively correlated with final exam grades. DISCUSSION. These strategies are always well-received by students and help them in their learning process. We conclude that peer assessment can be easily combined with teamwork and used in our context as an individual activity instead of a final exam.

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//Títol

Treball en grup, coavaluació i doble correcció d'exercis com a estratègies per a l'ensenyament de mètodes quantitatius d'investigació en sociologia

//Resum

INTRODUCCIÓ. La sociologia i l'estadística són part del programa d'estudis de molts graus i màsters, alguns dels quals no focalitzats en mètodes quantitatius d'investigació. És el cas de programes específics de gestió empresarial, en què els mètodes d'investigació quantitatius en sociologia apareixen de forma marginal en una sola assignatura. En aquestes assignatures, convé introduir estratègies docents innovadores que puguin motivar i ajudar l'alumnat en el seu procés d'aprenentatge. MÈTODE. Descrivim la nostra experiència i els resultats d'implementar el treball en grup, la coavaluació i la doble correcció d'exercis com a estratègies per a l'ensenyament de mètodes quantitatius aplicats a la investigació sociològica en el màster en Direcció d'Entitats Esportives de la Universitat de Barcelona. RESULTATS. Les notes en les activitats de coavaluació individuals estan positivament correlacionades. Aquestes notes permeten discriminar entre alumnes amb un major o menor rendiment, pel fet d'estar positivament correlacionades amb les notes finals. DISCUSSIÓ. Aquestes estratègies han estat sempre ben rebudes pels estudiants i els han ajudat en el seu procés d'aprenentatge. Concloem que la coavaluació pot combinar-se fàcilment amb el treball en grup i que pot ser utilitzada en el nostre context com una activitat individual en comptes de l'examen final.

//Paraules clau

Treball en equip; Coavaluació; Doble correcció d'exercis; Sociologia; Estadística.

//Título

Trabajo en grupo, coevaluación y doble corrección de ejercicios como estrategias para enseñar métodos cuantitativos de investigación en Sociología

//Resumen

INTRODUCCIÓN. La Sociología y la Estadística son parte del programa de estudios de muchos grados y másteres, no enfocados principalmente en métodos cuantitativos de investigación. Así ocurre en programas específicos de gestión empresarial, en los que los métodos de investigación cuantitativos en sociología aparecen de forma marginal en una sola asignatura. En estas asignaturas, conviene introducir estrategias docentes innovadoras que puedan motivar y ayudar al alumno en su proceso de aprendizaje. MÉTODO. Describimos nuestra experiencia y los resultados tras implementar el trabajo en grupo, la coevaluación y la doble corrección de ejercicios como estrategias para la enseñanza de métodos cuantitativos aplicados a la investigación sociológica en el Máster en Dirección de Entidades Deportivas de la Universidad de Barcelona. RESULTADOS. Las notas en las actividades de coevaluación individuales están positivamente correlacionadas. Estas notas permiten discriminar entre alumnos con un mayor o menor rendimiento, al estar positivamente correlacionadas con las notas finales. DISCUSIÓN. Estas estrategias han sido siempre bienvenidas por los estudiantes y les han ayudado en su proceso de aprendizaje. Concluimos que la coevaluación puede combinarse fácilmente con el trabajo en grupo y que puede ser utilizada en nuestro contexto como una actividad individual en lugar del examen final.

//Palabras clave

Trabajo en equipo; Coevaluación; Doble corrección de ejercicios; Sociología; Estadística.

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1. Introduction

In this paper, we present the results of implementing teamwork, peer assessment and double revision of assignments as strategies for teaching quantitative methods applied to sociological research. The experience took place in the Sport Business Management Master (SBMM) of the University of Barcelona and it is the result of many years (approximately seven) teaching that particular subject.

In our experience, students in specific business management masters are very often extremely heterogeneous in terms of their previous studies. We find that some of them have a poor background in statistics and sociology, while others have much more knowledge. Additionally, some are poorly motivated to study sociology and statistics, because they do not see how the subjects are going to be useful to them in the future. In this context, the introduction of innovative techniques in university teaching helps to increase students' motivation and encourage their engagement in active learning. Deslauriers, Schelew and Wieman (2011) show that even when the master class is taught by a highly regarded and expert lecturer, the students' benefits in terms of learning are lower than in a more interactive context, even if the lecturer in the latter case is a post-doctoral student with far less teaching experience. In the same context, Baepler (2014) shows that lecture time can be reduced through the introduction of active learning sessions without having a negative impact on student results.

Our teaching strategy has been inspired by team-based learning as a leading active learning methodology. Master classes play a minor role and they are substituted by activities devoted to interactions between small groups of students, who reinforce not only their knowledge and learning processes (Nordberg, 2008; Opdecam, Everaert and Van Keer, 2014; Shah, 2013), but also their interpersonal communication skills. A "cooperative learning" strategy, therefore, enhances the interconnection between students who, through their involvement in a common project, achieve better academic performance (Yamarik, 2007), increase their self-esteem, and foster their spirit of teamwork. Moreover, we think that, to some extent, such innovative teaching strategies may contribute to making them better professionals, since sociology and statistics provide particular skills and knowledge tools that will be necessary in their future life as managers of firms and organisations.

Regarding peer assessment, evidence shows that it contributes to increasing the participation and autonomy of students, as well as their responsibility towards their own learning process. Many authors (Planas *et al.*, 2012) have stressed the positive effects of peer assessment, namely, that it improves student motivation, contributes to improving the students' understanding, control and autonomy of their learning process and in their professional activity, and increases their critical analysis capability (Topping, 2009; Van der Berg, Admiraal and Pilot, 2007). Studies on the perception of students (Planas *et al.*, 2012) have stressed that peer evaluation has positively contributed to their learning process, improving quality, and increasing their level of motivation and engagement (Gatfield, 1999; Paswan and Gollakota, 2004). It has also been proved that lecturers and students may differ in their opinion of the objectives of a particular activity and the evaluation criteria (Planas *et al.*, 2012). Therefore, it is necessary to explain in detail the evaluation criteria that they must follow, with the help of rubrics if necessary.

The context

Each year approximately 25 students start the Sport Business Management Master (SBMM, which is an official master's programme of the University of Barcelona), and all of them enrol in the subject Quantitative Methods Applied to Sociological Research (QMASR), which is compulsory. From the beginning, we realised that it was advisable to adopt innovative techniques in the subject to facilitate the students' engagement in active learning. Our students are very heterogeneous in terms of their previous studies: most of them have completed a bachelor's degree in Physical Activity and Sports, but we also have students with bachelor's degrees in Business Administration, Law, Physiotherapy, Marketing and other Business programmes. Therefore, some students have a poor knowledge of statistics and sociology while others have a more comprehensive background. Additionally, students are also heterogeneous in terms of nationality, and sometimes the degrees from different countries are not equivalent. Hence, we found in some cases that students had studied sociology but with a focus on the reality of their own country.

From the beginning, we considered that teamwork was a good teaching strategy for the students and that it was advisable to gradually introduce further active learning strategies in addition to teamwork. The subject QMARS is taught in the first semester for 3 hours/week over four months. It is organised in two parts: Sociology (Part I) and Quantitative Research Methods (Part II). These two parts are taught by two different lecturers, one being a sociologist who teaches 1.5 hours/week of sociology and the other one being a statistician who teaches 1.5 hours/week of quantitative research methods. The content of the subject is focused on the survey as a research technique in the social sciences. There are a few master classes in each part that seek to present the theory necessary to apply the survey as a research method in sociology. Once the theory is presented, the students are organised in groups of 4 or 5 (the members of each group are decided by the students) and each group must carry out a complete survey-based sociological study. The topic of the research (related to the sociology of sport) can be chosen by each group, and it must be approved by the lecturers. Each team is asked to complete all the stages of a sociological study using a survey as a research technique (research project, questionnaire design, data analysis and presentation of the final report). Once the subject of their research has been chosen, each group must write and submit the following four assignments (each with a different deadline agreed upon according to the progress of their work over the semester):

- Research project (*assignment 1*): the research project consists of an introduction to the sociological topic, motivation, objectives, references and sample design of the survey (25% of the final mark)

- Survey design (*assignment 2*): students design the questionnaire that the individuals in the sample must answer. The questionnaire must fulfil the objectives established in the research project (25% of the final mark)

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- Data analysis and presentation of the final report (*assignment 3*): Initially, the third assignment included the real collection of data (by carrying out the corresponding interviews using the questionnaires designed in *assignment 2*) as well as the corresponding data analysis and the presentation of the final report. We realised, however, that due to time constraints (which resulted in practical and logistical problems in doing the interviews) it was better to change the approach. Now, a sociological database based on a survey is provided to students. Each group of students must do the data analysis of a specific part of the data set. Finally, each group must write and submit a final report on the data analysis they have carried out and do a public presentation of their report. The data analysis provides 12.5% of the final mark. It is done in groups. The oral presentation represents 6.25% of the final mark and it is also done in groups, but evaluated individually by the lecturers.

The first two assignments are each 25% of a student's final mark. The last assignment is 18.75% of the final mark (with the data analysis being 12.5% and the oral presentation being 6.25%). Additionally, there is a final exam, which is 25% of the final grade. The remaining 6.25% comes from the peer-assessment activities, which will be explained in detail in section 3, and it is an individual mark. Therefore, not all students who are part of the same team receive the same mark for each assignment, as their contribution, engagement and attitude in each assignment are considered separately.

2. The objectives

In this context, our main objective is to increase students' motivation for learning quantitative methods for sociological research by using innovative techniques that facilitate their engagement in active learning. In this sense, it is essential to analyse the feedback from our students (specifically on the innovation techniques which are implemented) and also their final grades. Additionally, we want to investigate the relationship between their performance in individual activities vs. group activities. In order to do so, we analyse the grades of our students in each part of the evaluation system (teamwork assignments, peer assessment, oral presentation, final exam) and calculate the correlations among them. This analysis provides us with relevant information for consideration in the definition of the teaching approach and evaluation system. Finally, we also want to know the opinions of our students about our teaching approach, specifically regarding peer assessment, as we think their views play a very important role in our teaching strategy.

3. Methodology

Teamwork was the first innovative teaching strategy we applied in the subject, and it worked very well for this group of students from the beginning. However, we realised that it was advisable to apply additional teaching strategies in order to increase their engagement and motivation.

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As noted earlier, peer assessment has also been applied in the context of our subject. Peer assessment consists of a process through which groups of individuals rate their peers (Dochy, Segers and Sluijsmans, 1999). We implemented peer assessment as follows. Once the first assignment (research project) was submitted, each assignment was evaluated by another group in the class. Thus, each group was evaluated by another group and also evaluated the assignment of another group (which also acted as an evaluator group). This does not necessarily mean that two groups evaluated each other. In fact, the lecturers now assign evaluator groups so that this does not happen. We then published all the submitted assignments in the virtual campus of the subject, so that each group could download and prepare the evaluation of the corresponding assignment. The evaluations are done individually. This means that each student in a group has to prepare their own evaluation, write it down in a document and submit the document to the lecturers. The lecturers provided the students with a document with guidelines to help them to carry out the evaluation. In the case of the first assignment, it is not a rubric properly speaking, only guidance on the sections and content that all research projects must have. Once the lecturers received the individual evaluations done by each student, there was a session in the classroom when each group met their corresponding evaluator group and they discussed the assignment. The sessions were always supervised by a lecturer, who played the role of moderator. Firstly, each student in the evaluator group was asked to discuss the assignment submitted by the group being evaluated, ask questions, make suggestions and so on. Then the members of the group being evaluated had the chance to reply and discuss the assignment with the evaluator group. Finally, the lecturers made their own evaluation and discussed or asked whatever was needed by the members of the group being evaluated. Approximately 30 minutes were required to carry out the peer-assessment session for each group. With the feedback received from the evaluator group and the lecturers, the group which was evaluated had the chance to improve the current version of its assignment and submit a final corrected version. Here the third innovation strategy took place: the double revision of assignments. The final mark received by students depended on the first version of the assignment they submitted and the final corrected version submitted after receiving feedback from the evaluator group and the lecturers. With the double revision of assignments, a student knew that if they were able to correct the assignment, the correction was going to be considered in their final mark. We think that it is a strong incentive for students to develop the capacity to correct their own mistakes and to learn from their own errors. If we do not give them the opportunity to correct and resubmit their assignment (with some kind of impact on their final mark), we think that most of them will forget what they have submitted, because they will think that they have already been evaluated and it is not worth looking at their assignment again.

This process was repeated again for the second and third assignments. Each group always evaluated the same group and was evaluated by the same group. We did the process in this way because the first and second assignments are closely related to each other and it is advisable for the same group to evaluate the two assignments of another group.

In the case of the third assignment, the public presentation of the data analysis was very important. In this case, each member of the group had to speak in the public presentation, as we were going to evaluate the final submitted report and their communication skills. In this case, each evaluator group had to evaluate both the final report and the public presentation of each member. To help students with the evaluation of the public presentation, we provided them with

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a rubric, which is available in the Appendix 1. The lecturers used the same rubric to evaluate the public presentation of each member of the group.

4. The results of our experience

We have applied the described teaching strategy with slight variations over the years. At first, only the lecturers gave feedback to each group after the submission of each assignment. Later, we decided to incorporate peer assessment in order to increase students' motivation and engagement in the subject, but we did so in a quite informal way and without considering it specifically in their final marks. Thus, the evaluator group was simply asked to review the assignment and provide some feedback, but most of the time the students did not properly review the assignment and only said that everything was fine and there was nothing to comment on. This situation changed when we specifically established in the marking system that their personal capacity to evaluate the assignments of other groups was going to be considered. Namely, their performance as evaluators was evaluated, marked and considered in their final grades (accounting for 6.25% of each student's final grade). We formally marked and considered peer assessment in the grades for the first time in the last academic year (2016-2017).

As noted earlier, we have been introducing innovative teaching strategies in this particular subject over many years based on student feedback and our own experience and intuition. We must say, however, that we have not used any formal tool or indicator to measure the impact of these innovation strategies. We think that one such tool could be an index that compares the average final grades of students in the subject historically with those obtained after the introduction of the innovation techniques. For the moment, we have not yet implemented such an index because traditionally we did not include a formal individual exam as part of the evaluation system. For many years, students were evaluated only through their grades on the teamwork assignments (*assignments 1, 2* and *3*). An exam was first introduced in the 2015-16 academic year, representing 25% of the final mark, and it was used again as part of the evaluation system in the last academic year 2016-17. We instituted the exam because it was advisable to have some formal individual test to manage free-rider problems. We consider the exam to be a relevant change. However, this latest modification in the marking system does not allow us at present to carry out a historical comparison of grades. For the next academic year, when the scoring system is well-established, we plan to carry out a comparison of results.

For the moment, we can describe the results of the academic grades obtained by students in the 2016-2017 academic year in each part of the evaluation system and we can analyse the correlations among them, which we think provide interesting conclusions. Additionally, we show the results of a questionnaire completed by students on their peer-assessment experience (see Appendix 2).

In order to obtain students' opinions of the peer-assessment experience, we designed a questionnaire. We asked students about the extent to which they agreed with a number of statements about the peer-assessment experience (developing critical capacity, motivation to study, subjectivity of the co-evaluators, etc.). The complete questionnaire is available in Appendix 1.

The questionnaire was completed by 20 students at the end of the last academic year. It was anonymous, so that the responses would be as honest and accurate as possible. The summary results of their responses appear in Table 1 and Figure 1.

Table 1
Results of questionnaire responses

	Mean	Standard deviation	Minimum	Maximum
Q1: Developing one's critical capacity	2.85	0.67	1	4
Q2: Learning from one's own and others' mistakes	3.50	0.51	3	4
Q3: Evaluators were less critical than the lecturer	3.05	0.76	2	4
Q4: Evaluators were more subjective than the lecturer	2.80	0.77	1	4
Q5: Evaluation as motivation to study	2.60	0.94	1	4

Source: own elaboration.

Table 2
Descriptive statistics of the grades

	Mean	Standard deviation	Minimum	Maximum
Peer-assessment/Coevaluation	6.45	2.54	1	9
Exam	5.59	2.33	0	8.9
Assignment 1-Project	7.09	1.51	5	9
Assignment 2-Questionnaire	6.52	1.64	3.5	8
Assignment 3-Final report	6.45	2.54	1	9
Oral presentation	6.75	2.41	0	9
Final score	6.38	1.24	3.9	8.3

Source: own elaboration.

We see that the statement with the highest average score (where 1 = *totally disagree*, 2 = *mostly disagree*, 3 = *mostly agree* and 4 = *totally agree*) is Q2 (peer assessment helped me to learn from my own and others' mistakes): 50% of respondents mostly agree with this statement and 50% totally agree. The statement with the second highest average score is Q3 (evaluators were less critical of the assignments than the lecturer), but none totally disagrees with the statement. Next, Q1 (peer assessment helped me to develop my critical capacity) and Q4 (evaluators were more subjective in the evaluation of my assignments than the lecturer) have almost the same average score, with one student responding that they totally disagreed with the corresponding statements. It is relevant to note that 80% of students mostly or totally agreed with statement Q1. Finally, the statement with the lowest average score is Q5 (peer assessment is a motivation to study the contents of the subject in more detail).

Table 2 shows the descriptive statistics for the grades in the subject, while Table 3 shows the correlation coefficients among the grades. The peer-assessment grade can be understood to some extent as a rating of a student's critical capacity. We see that our students, on average, obtained 6.45/10, which means that they have a medium/high critical capacity. The standard deviation is 2.54, the minimum mark is 1/10 and the maximum is 9/10, so there are quite extreme marks among individuals. We also see that the peer-assessment grade is positively correlated with the exam grade, and the correlation is highly significant. This means that those

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who have a higher critical capacity also had a higher performance on the final exam. This result allows us to conclude that the individual grades on peer-assessment activities could be used to distinguish between higher and lower performing students and, moreover, we could consider using peer assessment instead of the final exam in subsequent years. We also observe that the peer-assessment grade is positively correlated with the questionnaire grade (*assignment 2*) and the oral presentation grade, but these correlations are significant at the 10% significance level. Further, we see that the project (*assignment 1*) is the assignment with the highest average grades and the most homogeneous ones (all projects had a grade higher than or equal to 5/10), while the worse results were obtained in the exam. The correlation between the exam grade and the oral presentation grade is significant and positive. The correlation is also positive and significant between the project and the questionnaire (*assignment 2*), between the project and the report (*assignment 3*) and, finally, between the questionnaire and the report (*assignments 2* and *3*, respectively). In other words, the three assignments done by the students in groups are positively and significantly correlated among themselves. The correlation between peer assessment and oral presentation (also individual assignments) is also positive and significantly correlated at a lower significance level. We conclude that in subjects where the evaluation system is based on teamwork activities, it is extremely important to assess the individual performance of each member correctly and to provide tools to help the lecturer in that respect.

Table 3

Pearson correlation coefficients among grades. * significant coefficient at 5% confidence level, ** significant coefficient at 10% level

	Peer assessment	Exam	Assignment 1-Project	Assignment 2-Questionnaire	Assignment 3-Final report	Oral presentation
Peer assessment (ind)	1	0.65**	0.21	0.40*	0.35	0.38*
Exam (ind)		1	-0.25	-0.02	0.07	0.50**
Assignment 1-Project (team)			1	0.82**	0.60**	0.08
Assignment 2-Questionnaire (team)				1	0.83**	0.21
Assignment 3-Final report (team)					1	0.11
Oral presentation (ind)						1

(ind): indicates individual assignment; (team): indicates team assignment
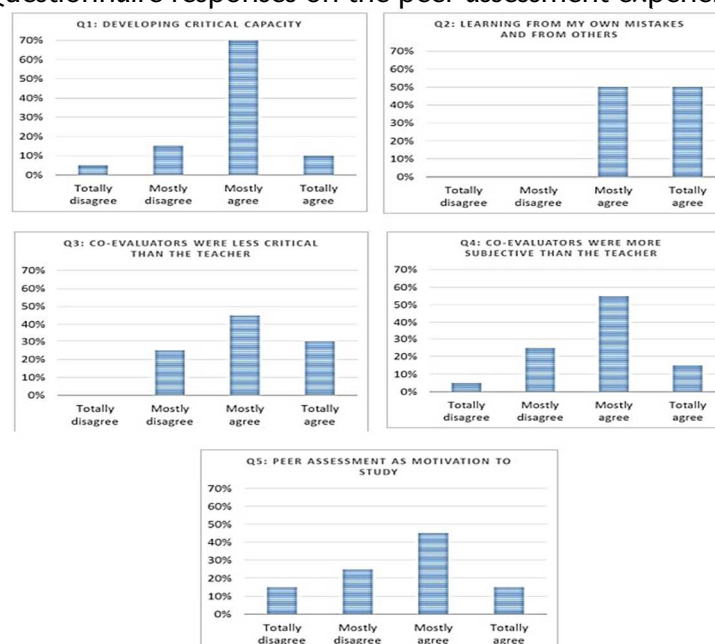
Source: own elaboration.

5. Discussion

In this paper we have described our experience of teaching quantitative methods for sociological research in business masters programmes over many years, during which we have gradually introduced relevant innovation strategies to address problems arising from students' lack of motivation and their heterogeneous backgrounds, among other factors. Specifically, we have introduced teamwork, peer assessment and the double revision of assignments. When analysing the grades obtained by our students in the last academic year (2016-2017), we observed a significant positive correlation first among teamwork activities and second among individual activities. In particular, we observed a high correlation between the grades in the peer-assessment activities and the grades in the final exam. This result allows us to conclude that, in subsequent years, peer-assessment activities could be used instead of the final exam to distinguish between higher and lower performing students.

Evaluating how effective our experience has been is not easy, because it has been applied to a small group of students, approximately 25 each year, and because we have implemented changes and introduced new strategies in our teaching method and evaluation system almost every year. We must say that all of these changes have always been well-received by students, and our conclusion from their feedback, based on their responses, is that the changes have contributed to bringing statistics and sociology closer to them and increasing their motivation. In subsequent years, we plan to consolidate the teaching strategies currently applied in the context of this subject and to carry out a formal evaluation of these strategies. Specifically, we want to measure whether there is any correlation between the acquisition of individual critical capacity and team activities. Of course, we are open to introducing additional innovation strategies (based, for example, on the "learning by doing" methodology, making students do their presentations to different groups in order to improve their oral presentation skills) that could help students in their process of learning quantitative methods for sociological research.

Figure 1
Questionnaire responses on the peer-assessment experience

Source: own elaboration.

\<References\>

Baepler, P. (2014). It's not about seat time: Blending, flipping, and efficiency in active learning classrooms. *Computers and Education*, *78*, 227–236. https://doi.org/10.1016/j.compedu.2014.06.006

Deslauriers, L., Schelew, E., and Wieman, C. (2011). Improved Learning in a Large-Enrollment Physics Class. *Science*, *332*, 862–864. https://doi.org/10.1126/science.1201783

Dochy, F., Segers, M., and Sluijsmans, D. (1999). The Use of Self-, Peer, and Co-assessment in Higher Education: A Review. *Studies in Higher Education*, *24*(3), 331–350. https://doi.org/10.1080/03075079912331379935

Gatfield, T. (1999). Examining Student Satisfaction with Group Projects and Peer Assessment. *Assessment and Evaluation in Higher Education*, *24*(4), 365–377. https://doi.org/10.1080/0260293990240401

Nordberg, D. (2008). Group projects: More learning? Less fair? A conundrum in assessing postgraduate business education. *Assessment & Evaluation in Higher Education*, *33*, 481–492. https://doi.org/10.1080/02602930701698835

Opdecam, E., Everaert, P., and Van Keer, H. (2014). Preferences for Team Learning and Lecture-Based Learning among First-Year Undergraduate Accounting Students. *Research in Higher Education*, *55*, 400–432. https://doi.org/10.1007/s11162-013-9315-6

Paswan, A. K., and Gollakota, K. (2004). Dimensions of Peer Evaluation, Overall Satisfaction, and Overall Evaluation: An Investigation in a Group Task Environment. *Journal of Education for Business*, *79*, (4), 275–231. https://doi.org/10.3200/JOEB.79.4.225-231

Planas, A., Arbat, G., Feliu, L., Fraguell, R. M., Montoro, L., Pujol, J., Roura-Pascual, N., Suñol, J. J., and Zamora, L. M. (2012). Experiencia interdisciplinar de coevaluación: la percepción de los estudiantes de la Universidad de Girona, CIDUI 2012. Recovered from: http://www.cidui.org/revistacidui/index.php/cidui/article/view/413

Shah, S. Z. A. (2013). The use of group activities in developing personal transferable skills. *Innovations in Education and Teaching International*, *50*, 297–307. https://doi.org/10.1080/14703297.2012.760778

Topping, K. (2009). Peer Assessment. *Theory into Practice*, *48*(1), 20–27. https://doi.org/10.1080/00405840802577569

Van den Berg, I., Admiraal, W., and Pilot, A. (2007). Peer Assessment in University Teaching: Evaluating Seven Course Designs. *Assessment & Evaluation in Higher Education*, *31*(1), 19–36. https://doi.org/10.1080/02602930500262346

Yamarik, S. (2007). Does cooperative learning improve student learning outcomes? *Journal of Economic Education*, *38*, 259-277. Recovered from: https://www.jstor.org/stable/30042780

Villasante, T. R. (1998). *Cuatro redes para mejor vivir*. Buenos Aires: Lumen.

Appendix 1. Evaluation rubric for the oral presentation

Evaluation criteria	Name of each student in the group		
Structure and content The explanation is ordered and clear. The concepts are used correctly. The slides serve as a support for what is said.			
Nonverbal communication Has good posture and movements are natural. Maintains eye contact with the audience.			
Pace and tone of voice The speed is adequate, neither too slow nor too fast. The tone of voice is not monotonous and holds the attention of the audience.			

Score
1 = Not achieved
2 = Somewhat achieved
3 = Achieved

Group score (/10): _____

Appendix 2. Short questionnaire on peer-assessment experience

Rate the extent to which you agree with the following statements on a scale of 1 to 4, where 1 = *totally disagree*, 2 = *mostly disagree*, 3 = *mostly agree* and 4 = *totally agree.*

		1	2	3	4
Q1.	Peer assessment helped me to develop my critical capacity.				
Q2.	Peer assessment helped me to learn from my own and others' mistakes.				
Q3.	The evaluators were less critical than the lecturer.				
Q4.	The evaluators were more subjective than the lecturer.				
Q5.	Peer assessment has been a motivation to study the subject in more detail.				

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