

*La evaluación entre iguales: una experiencia práctica en Didáctica de la Educación Física.*

*Peer Evaluation: A Practical Experience in Didactics of Physical Education.*

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**Resumen:** La evaluación entre pares es uno de los métodos de evaluación que puede ser empleado en el área de Educación Física. Durante este proceso, el alumnado se implica llevando a cabo las actividades y también como evaluador. El estudio que se presenta tuvo por objeto analizar la percepción del alumnado en la asignatura de Didáctica de la Educación Física en el Grado de Educación Primaria durante el proceso de evaluación entre pares, así como determinar la posibilidad de introducir este sistema de evaluación en la calificación total de la asignatura y en su futuro como docentes. En los resultados, observamos que el 77.5% del alumnado tuvo una percepción positiva, siendo el 67.5% del grupo quienes consideraron que la evaluación formara parte de la nota final y el 90% afirmó que sería interesante introducir este sistema de evaluación en su futuro como docentes. No obstante, sería necesario un estudio longitudinal para conocer cuál ha sido el índice de aplicación real durante su labor profesional y su impacto sobre la adquisición de competencias en el alumnado de primaria.

**Palabras clave:** Evaluación Formativa, Evaluación Entre Iguales, Educación Física, Aprendizaje, Enseñanza, Educación Superior.

**Abstract:** Peer evaluation is one of the assessment methods that can be used in the Physical Education subject. During this process, the students are involved in performing the activities and well as in being evaluators. The aim of this study was to analyse the students’ insights in the subject of Didactics of Physical Education in the Primary Education Degree during the peer evaluation process, thus to determine the possibility of introducing this evaluation system in the subject and in his future as teachers. In the results, we observed that 77.5% of the students had a positive insight, being 67.5% of the group the ones who considered that this evaluation should be considered as a part of the final marks. From all students, the 90% considered that it would be interesting to introduce this evaluation system in their future as teachers. However, a longitudinal study would be necessary to know the application rate during their professional work and its impact on the acquisition of competences in the Primary students.

**Keywords:** Formative evaluation, Peer Evaluation, Physical Education, Learning, Teaching, Higher Education.

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### *Peer Evaluation: A Practical Experience in Didactics of Physical Education.*

#### **1. Introduction**

Evaluation is one of the most complex aspects that can arise in the teaching tasks (Perassi, 2008), being widely described within the area of Physical Education (Blázquez, 1990; Delgado-Noguera, 1991; Lucea, 2005) and in the University context (López-Pastor, Pascual, Martín, 2005; López-Pastor et al., 2007; Vernetta, López, & Delgado, 2009; 2010; Fernández, 2009, Martínez, Martín, & Capllonch, 2009; Fraile-Aranda, Pastor, Oliva, & Romero, 2013; Aranda, 2013). In the current system, in which we focus on the acquisition of competences (Marqués-Blaquè, 2009; Alles, 2002; García, 2008; Fernández, 2009; March, 2010), the methodology (Ortuño, Aja, Bueno et al., 2009; de Miguel-Díaz, 2005; de Miguel-Díaz et al., 2006), and the students’ work (Hortigüela-Alcalá, Pérez-Pueyo, & López-Pastor, 2015), it becomes necessary to carry out a reflection process to rethink the concept of teacher evaluation during the teaching-learning process (Gessa-Perera, 2011).

The learning cycle comprises five stages: hooking, exploration, explanation, elaboration and evaluation (Lawson, 1995; Talanquer, 2005). Therefore, there is a close relationship between the type of evaluation used and the content and methodology through which students acquire contents (Álvarez, 2005; Hamodi, López-Pastor, López-Pastor, 2015). Taking into account the orientation of the evaluation towards learning, Álvarez (2008) points out three aspects to be borne in mind: the approach of assessment tasks as a means of learning, the involvement of the students in the evaluation process and the contribution of the results of the evaluation as a feedback. This strategy aims to improve the learning process, promote students' cognition and improve the teaching practice (Álvarez-Méndez, 2001).

In this sense, the formative evaluation is that type of evaluation used by teachers with the aim of adapting its pedagogical action to the processes and learning difficulties observed in the students (Allal, 1980; López, 1981; Álvarez-Méndez, 2001; Martín et al., 2006). During this process, the development of understanding and elaboration of thought takes place, a fact that implies being continuously at the service of the improvement of the practice and of those who benefit from it (Álvarez-Méndez, 2001). The role acquired by teachers consists, therefore, in clarifying the intentions of learning, seeking for efficiency during the lessons' discussions and other tasks that demonstrate the students' understanding, therefore favoring a feedback that pushes them to move forward (Black & Wiliam, 2009). Consequently, both the evaluator and the student understand and share the intentions to learn and those criteria to achieve success.

Therefore, this activity of exchange of content acquisition becomes a continuous internal dialogue, which forces us to reflect on what, how and why in which students become aware of their own learning, also stimulating metacognitive skills (Gallego, 2006; Hamodi, López-Pastor, López-Pastor, 2015). Consequently, this strategy should facilitate self-analysis, control over actions, knowledge, skills and being aware of strategies for its development (Gallego, 2006), thus helping and guiding students during their process of knowledge construction (Sanmartí, 2007).

Peer evaluation is an evaluation process that has been widely described due to its relevant involvement of students during the evaluation process, as well as for the conceptual confusion regarding other terms with similar characteristics such as co-evaluation, in which the teacher and students negotiate the evaluation (Gómez-Ruiz & Quesada-Serra, 2017). Some of the main characteristics indicated by these authors are the adaptation to

the characteristics of the students and context and training, as well as the integration in the daily processes of teaching-learning and ethics. To do this, it is suggested the alternative use of teacher notebooks, student productions such as portfolios, rubrics for students in which a group observation and self-reports are collected. This type of strategy is especially interesting in complex tasks in which students are able to receive and improve their technique according to the feedback received.

During the process of training the future Primary Education Teachers, it is especially necessary to raise awareness and experience the formative evaluation from different perspectives. The peer evaluation is one of them, thus learning to evaluate from an objective and valid perspective, adapted to different learning situations (Gallego, 2006). In this way, what we intend is to stimulate higher order thinking (HOT) (Lewis & Smith, 1993), which is characterized by integrating four aspects based on experience, including the private and shared dimensions (Garrison, Anderson, & Archer, 2001; 2010). The first is the trigger event, where we find the dilemma or the need to solve a task, emerging from experience. The second, exploration, is characterized by a search for possible solutions and is, therefore, a phase of exchange between the private dimension and the social part that encompasses the exploration of ideas. The third, integration, during which the meaning of the ideas generated in the exploratory phase, is constructed. Finally, we find the resolution of the dilemma or problem, which requires the implementation of the proposed response (Garrison, Anderson, & Archer, 2001). In the literature reviewed (Maier, 1933; Bartlett, 1958; Resnick, 1987; Newman, 1990), we find that HOT differs from lower-order thinking (Maier, 1933; Bartlett, 1958; Resnick, 1987; Newman, 1990), in the way that it is capable of integrating the parts of the complexity as a whole, facilitating an experience that fills those gaps that may have been left, although both can be integrated simultaneously (Resnick, 1987).

During this process, Lewis & Smith (1993), recall five aspects that all teachers must remember, of which the fact that the acquisition of skills through higher order thinking is a right to which all students must have access, being also present in every moment of society, when it becomes necessary to solve problems efficiently.

The purpose of this study was, firstly, to analyze the perception of the students during the peer evaluation process. Secondly, to determine the degree of agreement according to the possibility of introducing peer evaluation as a qualification instrument of the subject of Physical Education Teaching in the Degree of Primary Education. Thirdly, it is aimed to

know if the students who have experienced this process of peer evaluation consider the possibility of using it in their future as a teacher during Primary Education.

## **2. Methodology**

### *a. Sample*

The sample was formed by the students of the second year of Primary Education in the Teaching Faculty during the 2018-2019 academic year (n=40, 34 female and 6 male, age: 20.3±0.6 years).

### *b. Data collection and analysis*

This study was carried out in the subject of Didactics of Physical Education in Primary Education. The students carried out, during 7 sessions, exercises such as the execution of jumps with ropes or the exhibition of Didactic Units (DU) referred to the programming of the subject.

Teachers and students had the same items in their rubrics (Jonsson & Svingby, 2007; Panadero & Jonsson, 2013) to evaluate and peer evaluate, respectively. Once the subject was completed, the teacher provided a questionnaire through the Moodle platform in which the students answered four questions. The first one referred to the definition of evaluation. The second, how the students felt when they were evaluated among equals. The third, in which he was asked if they would like that this qualification generated by the rest of classmates would be part of the total qualification, which could be considered as a possible co-evaluation (Pastor, 2005; Gessa, 2011; Rodríguez, Ibarra, & García, 2013; López-Pastor et al., 2016; Ruiz & Serra, 2017). Finally, if they would use peer evaluation in the future as teachers during the stage of Primary Education. These data were coded and analyzed qualitatively (Hernández, 2014), making use of a constructivist-interpretative paradigm to know the subjectivity of the sample (Pasmanik, Rodríguez, Espejo, Isabel, & Tarride, 2016).

## **3. Results**

### **a. Perceptions of the students during the peer evaluation process.**

From all participants, 77.5% of the students answered that the peer evaluation process had been positive, comfortable and had increased the level in which they felt involved in the sessions, showing statements such as:

*"Sometimes I felt insecure if our work received a bad review, but the fact that our colleagues have evaluated our work is very useful to improve ourselves, progress and also know our mistakes" (P-01-01).*

*"I felt useful because I was a participant during the evaluation of my classmates" (P-01-06).*

*"I felt fair because we were living in the first person what it means to evaluate a partner" (P-01-07).*

The remaining 22.5%, argued aspects such as discomfort, nervousness, increased competitiveness or possible doubts in the absence of companionship.

*"I did not feel very comfortable. It is a little subjective, since I suppose that among friends they will get good grades" (P-01-02).*

*"I did not like it. In my opinion, it encourages competition excessively and I have not felt comfortable evaluating, nor feeling that I was going to be evaluated" (P-01-16).*

*"I felt self-conscious, since I'm not used to doing an activity while the other classmates observe and evaluate me" (P-01-27).*

**b. Students' response to the possibility that peer evaluation will be part of the final grade.**

In this item, 67.5% answered affirmatively, noting aspects such as the importance of knowing the opinion of other classmates to improve or empathize with the teaching task, also considering this as a possible strategy to increase the grade in the subject, if the working groups considered it that way.

*"Yes, I would like it because I think it is a perspective that the teacher should take into account" (P-02-06).*

*"It would be good if it were part of my note, because if everyone completed it correctly, it would be a fair evaluation" (P-02-07).*

*"I would like it because they have a different vision, as students as well and not as teachers" (P-02-24).*

However, the remaining 32.5% argued differences in affinity ratings such as friendship, possible lack of knowledge on the part of peers when evaluating a job or low objectivity.

*"I have mixed feelings, since I believe that there are people who have taken it as a lack of companionship and have evaluated based on previous interpersonal*

*relationships and, therefore, have not been objective with the work that each one has performed" (P-02-23).*

*"It's interesting but I would not like it to be part of my qualification because I think that not all of them have been objective" (P-02-18).*

**c. Use of peer evaluation in the future Primary Education students.**

Finally, 90% of the students considered peer evaluation as an element to add in their future plans and rubrics, together with the teaching assessment. Among his arguments, there was the possibility of adopting different perspectives, the increase in participation during the sessions, the possibility of adopting a critical perspective on the part of the students, making decisions or assessing the effort on the part of the rest of the classmates.

*"Yes, I think it would help them to be more aware of the class and also understand the difficulty of being a teacher when evaluating" (P-04-02).*

*"Yes, because I think it's a way to make them more protagonists of their own learning. In addition, I believe that they will be motivated and will want to do the activities in the best possible way so that their classmates can give them a better grade and vice versa" (P-04-04).*

*"In my opinion, it is fundamental for the students to participate in the sessions, being receptors and senders of the messages" (P-04-13).*

Among the 10% who do not consider it, there were affirmations such as the possibility of generating bad relationship among the students, considering this task as part of the teacher's work. The alternative referred to verbalized sharing, in a formative and constructive way.

*"I think that evaluation is the teacher's job. In addition, many fights between the students would be generated and it would be a problem for the teachers" (P-04-27).*

*"The group can make an inappropriate use of this and, therefore, unwittingly, the teacher can create an unwanted group tension" (P-04-23).*

It is important to point out that the students made this type of evaluation in two different moments, being one in courses up to 3<sup>rd</sup> of Primary and another in higher courses.

*"In pupils up to 3rd grade of Primary, yes, but not later because at that age there begins to be favoritism and notes can be placed according to friendships"* (P-04-15).

*"I would do it from the second cycle of Primary, since they are at the time when they observe a lot and begin to become aware of what others can learn and solve their own mistakes"* (P-04-12).

#### **4. Discussion**

This study shows the results of a research carried out during the academic course of the subject of Didactics of Physical Education in Primary Education during which the peer evaluation process has been implemented in 7 sessions through a rubric. The rubric is a descriptive scale that is included in the formative evaluation and which the students value positively because they are aware of the criteria that will form part of their "grade", a fact that favors them to show a positive attitude towards their future teaching application (López-Pastor, Pérez-Pueyo, Barba, & Lorente-Catalan, 2016). In this study, at all times, the students showed agreement with the items of the rubric used, also proposing their application in their future as teachers, as it is suggested in the revised literature (Schafer, Swanson, Bené, & Newberry, 2001; Andrade & Du, 2005). Sáiz, Gómez, & Ruiz (2012), recommend informing and involving students during the evaluation process, teach peer tutoring and systematize the evaluations through evaluation procedures, such as criteria, objects, tasks, products, methods, techniques and instruments.

Ruiz & Serra (2017) analyzed the co-evaluation process with students in the first year of the Degree in Early Childhood Education. In their results, they found that 77.5% agreed with the fact that the teachers asked the students before establishing a teaching qualification. In that same study, 28.69% of the students highlighted the benefits of the shared evaluation between teacher and students, while 16.39% considered the opinion of the students as a positive element. This fact was verified in our study, where the participation of the students was 100% and also, informally, they said they were grateful for the fact of having consulted the type of evaluation they wanted to have.

The evaluation is one of the strategies that can be used to encourage collaboration and cooperation among students (Velázquez, Fraile, & López, 2014). According to the classification established by Prins, Sluijsmans, Kirschner, & Strijbos (2005), there are three types of evaluation among equals: intragroup, intergroup and individual evaluation. The study presented was directed to work groups that evaluated, firstly, reciprocally in



pairs and, later, in groups to other groups of equal number of components. In our results, we found that 22.5% of the students felt comfortable during the process. However, among the arguments of the remaining percentage, they showed not to have felt comfortable because they doubted about the lack of companionship.

In this sense, Fallows & Chandramohan (2010) suggest that peer evaluation is especially recommended for tasks that require detailed work. In our case, it was carried out in the detailed work of the jumps technique with ropes. These same authors recommend group evaluation for those activities that require attention towards the performance of others and contribute to a group activity. In this way, they can answer questions such as "How well have I applied this technique to my performance?", "How can I improve my performance level?"

Moreover, 77.5% of the students showed that the peer assessment had been comfortable. This result is very similar to the one found by Ruiz & Serra (2017), where 75.41% of the students agreed with the peer assessment. In the same study, 92.62% of the students considered that they had learned from their mistakes.

In the study that is shown, the 67.5% of the students agreed with the possibility that this assessment was part of the final evaluation. Some students highlighted the fact that they could increase the subject's marks. In the study by Ruiz & Serra (2017), when they asked about the possibility of obtaining high marks, the 77.87% agreed with this affirmation, meanwhile 18.03% agreed in a part and 4.1% completely disagreed.

Finally, the 90% of the students considered the peer evaluation as an element to be included in their future plans and rubrics. The results reported by Ruiz & Serna (2017) affirmed that this assessment could be taken into consideration for other subjects, with a complete agreement (77.87%), and partial agreement (18.85%) with this affirmation.

From the results in the present study, they show that a large part has had a positive perception during the peer evaluation process. However, it is important to bear in mind that some of the students have not felt comfortable during this process. It is necessary to carry out a meticulous work to elaborate rubrics and evaluation processes that adjust to the reality of the group, taking special care with the strategies that the groups can acquire to benefit or harm.

## References

Allal, L. (1980). Estrategias de evaluación formativa: concepciones psicopedagógicas y modalidades de aplicación. *Infancia y aprendizaje*, 3(11), 4-22.

Alles, M. A. (2002). *Desempeño por competencias: evaluación de 360o*. Ediciones Buenos Aires: Granica SA.

Álvarez, I. (2008). Evaluación del aprendizaje: una mirada retrospectiva y prospectiva desde la divulgación científica. *Revista electrónica de Investigación Psicoeducativa*, 14(1), 235-272.

Álvarez-Méndez, J. M. (2001). *Evaluar para conocer, examinar para excluir*. Madrid: Morata.

Andrade, H. L., & Du, Y. (2005). Student perspectives on rubric-referenced assessment. *Practical Assessment, Research & Evaluation*, 10(3), 1-11.

Aranda, A. F. (2013). Un cambio democrático en las aulas universitarias: Una experiencia en la formación del profesorado de Educación Física. *Contextos Educativos. Revista de Educación*, 6, 213-234.

Bartlett, F.C. (1958). *Thinking: An experimental and social study*. London: Allen & Unwin.

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability (formerly: Journal of Personnel Evaluation in Education)*, 21(1), 5-31.

Blázquez Sánchez, D. (1990). *Evaluar en educación física*. Barcelona: Inde.

de Miguel-Díaz, M. (2005). Cambio de paradigma metodológico en la Educación Superior. Exigencias que conlleva. *Cuadernos de integración europea*, 2, 16-27.

de Miguel-Díaz, M., Alfaro Rocher, I., Apodaca Urquijo, P., Arias Blanco, J., García Jiménez, E., & Lobato Fraile, C. (2006). *Metodologías de enseñanza y aprendizaje para el desarrollo de competencias: orientaciones para el profesorado universitario ante el Espacio Europeo de Educación Superior*. Madrid: Alianza.

Delgado Noguera, M. Á. (1991). Los estilos de enseñanza en la Educación Física: Propuesta para una reforma de la enseñanza. *Granada: Universidad de Granada*.

Fallows, S. J., & Chandramohan, B. (2001). Multiple Approaches to Assessment: Reflections on Use of Tutor, Peer and Self-assessment. *Teaching in Higher Education*, 6(2), 229-246.

Fernández, A. B. (2009). *Desarrollo y evaluación de competencias en educación superior* (Vol. 23). Madrid: Narcea.

Fraile-Aranda, A., Pastor, V. M. L., Oliva, F. J. C., & Romero, R. (2013). La evaluación formativa en docencia universitaria y el rendimiento académico del alumnado. *Aula abierta*, 41(2), 23-34.

Gallego, L. V. (2006). Evaluación del aprendizaje para promover el desarrollo de competencias. *Educatio siglo XXI*, 24, 57-76.

García, M. E. C. (2008). La evaluación por competencias en la educación superior. *Profesorado. Revista de curriculum y formación de profesorado*, 12(3), 1-16.

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of distance education*, 15(1), 7-23.

Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *The internet and higher education*, 13(1-2), 5-9.

Gessa Perera, A. (2011). La coevaluación como metodología complementaria de la evaluación del aprendizaje: análisis y reflexión en las aulas universitarias. *Revista de educación*, 354, 749-764.

Gomez-Ruiz, M. Á., & Quesada-Serra. (2017). Coevaluación o evaluación compartida en el contexto universitario: la percepción del alumnado de primer curso. *Revista Iberoamericana de Evaluación Educativa*, 10(2), 9-30.

Hamodi, C., López Pastor, V. M., & López Pastor, A. T. (2015). Medios, técnicas e instrumentos de evaluación formativa y compartida del aprendizaje en educación superior. *Perfiles educativos*, 37(147), 146-161.

Hernández Carrera, R. M. (2014). La investigación cualitativa a través de entrevistas: su análisis mediante la teoría fundamentada. *Cuestiones Pedagógicas*, 23, 187-210.

Hortigüela-Alcalá, D., Pérez-Pueyo, Á., & López-Pastor, V. (2015). Implicación y regulación del trabajo del alumnado en los sistemas de evaluación formativa en educación

superior. *RELIEVE. Revista Electrónica de Investigación y Evaluación Educativa*, 21(1), 1-15.

Jonsson, A., & Svingby, G. (2007). The use of scoring rubrics: Reliability, validity and educational consequences. *Educational research review*, 2(2), 130-144.

Lawson, A. E. (1995). *Science teaching and the development of thinking*. Wadsworth publishing company.

Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory into practice*, 32(3), 131-137.

López-Pastor, V. M., Pérez-Pueyo, Á., Barba, J. J., & Lorente-Catalán, E. (2016). Percepción del alumnado sobre la utilización de una escala graduada para la autoevaluación y coevaluación de trabajos escritos en la formación inicial del profesorado de educación física (FIPEF). *Cultura, ciencia y deporte*, 11(31), 37-50.

López Pastor, V. M.; Barba, J.J.; Monjas, R. et al. (2007). Trece años de Evaluación compartida en Educación Física. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte*, 7(26), 69-86.

López-Pastor, V. M., Pascual, M. G., & Martín, J. B. (2005). La participación del alumnado en la evaluación: la autoevaluación, la coevaluación y la evaluación compartida. *Rev. Tándem Didáctica Educación Física*, 17, 21-37.

López, C. R. (1981). *Criterios para una evaluación formativa: Objetivos. Contenido. Profesor. Aprendizaje. Recursos* (Vol. 56). Madrid: Narcea.

Lucea, J. D. (2005). *La evaluación formativa como instrumento de aprendizaje en Educación Física* (Vol. 35). Barcelona: Inde.

Maier, N. R. (1933). An aspect of human reasoning. *British Journal of Psychology*, 24(2), 144-155.

March, A. F. (2010). La evaluación orientada al aprendizaje en un modelo de formación por competencias en la educación universitaria. *REDU: Revista de Docencia Universitaria*, 8(1), 11-34.

Martín, J. J. B., Aguado, R. M., García, J. G., et al. (2006). La Evaluación en Educación Física: revisión de modelos tradicionales y planteamiento de una alternativa: la

evaluación formativa y compartida. *Retos: nuevas tendencias en educación física, deporte y recreación*, 10, 31-41.

Martínez, L., Martín, M., & Capllonch, M. (2009). Una experiencia de desarrollo profesional del docente universitario de Educación Física a través de una práctica crítica, reflexiva y colaborativa. *Cultura y Educación*, 21(1), 95-106.

Marquès-Blanqué, M. (2009). La evaluación de competencias en la Educación Superior: retos e instrumentos. *Revista de Educación y Derecho – Education and Law Review*, 1.

Newman, F.M. (1990). Higher order thinking in teaching social studies: A rationale for the assessment of classroom thoughtfulness. *Journal of Curriculum Studies*, 22, 41-56.

Ortuño, M., Aja, E., Bueno, M. et al. (2009). Experiencia docente contrastada de un grupo de adaptado a las directrices del Espacio Europeo. *Revista de Educación y Derecho – Education and Law Review*, 1.

Panadero, E. & Jonsson, A. (2013). The use of scoring rubrics for formative assessment purposes revisited: A review. *Educational Research Review*, 9, 129-144

Pasmanik Volochinsky, D., Rodríguez Araneda, M. J., Espejo, R., Isabel, M., & Tarride Fernández, M. (2016). Reconstrucción del ethos de la ingeniería civil industrial en Chile: un acercamiento preliminar. *Acta bioethica*, 22(2), 347-356.

Perassi, Z. (2008). La evaluación en educación: un campo de controversias. *San Luis: Ediciones del Proyecto y Ediciones LAE*.

Prins, F. J., Sluijsmans, M. A., Kirschner, P. A. & Strijbos, J. W. (2005). Formative Peer Assessment in a cscl Environment: a Case Study. *Assessment & Evaluation in Higher Education*, 30 (4), 417-444.

Resnick, L. (1987). *Education and learning to think*. Washington, DC: National Academy Press.

Rodríguez Gómez, G., Ibarra Saiz, M., & García Jiménez, E. (2013). Autoevaluación, evaluación entre iguales y coevaluación: conceptualización y práctica en las universidades españolas. *Revista de Investigación en Educación*, 2 (11), 198-210.

Ruiz, M. Á. G., & Serra, V. Q. (2017). Coevaluación o evaluación compartida en el contexto universitario: la percepción del alumnado de primer curso. *Revista Iberoamericana de Evaluación Educativa*, 10(2), 9-30.

Sanmartí, N. (2007). Hablar, leer y escribir para aprender ciencia. Universidad Autónoma de Barcelona. En: Fernández, P. (2007). La competencia en comunicación lingüística en las áreas del currículo. Colección Aulas de Verano. Madrid: MEC.

Sáiz, M. S. I., Gómez, G. R., & Ruiz, M. Á. G. (2012). La evaluación entre iguales: beneficios y estrategias para su práctica en la universidad1 Benefits of Peer Assessment and Strategies for Its Practice at University. *Revista de educación*, 359, 206-231.

Schafer, W., Swanson, G., Bené, N., & Newberry, G. (2001). Effects of teacher knowledge of rubricson student achievement in four content areas. *Applied Measurement in Education*, 14(2), 151-170

Talanquer, V. (2005). El químico intuitivo. *Educación Química*, 16(4), 540-547.

Velázquez Callado, C., Fraile Aranda, A., & López Pastor, V. M. (2014). Aprendizaje cooperativo en educación física. *Movimento*, 20(1), 239-259.

Vernetta, M., López, J., & Delgado, M.A. (2009). La coevaluación en el aprendizaje de las habilidades gimnásticas, en el ámbito del espacio europeo universitario. *Motricidad. European Journal of Human Movement*, 23, 123-141.

Vernetta, M., López, J., & Delgado, M. A. (2010). Shared assessment in learning gymnastic skills in European higher education space. *European Journal of Human Movement*, 23, 123-141.