

Board-games as review lessons in English language teaching: useful resources for any level

Los juegos de mesa como clase de revisión en el aula de lengua inglesa: recursos útiles para cualquier nivel

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Recibido: febrero 2015

Evaluado: junio 2015

Aceptado: septiembre 2015

Resumen

Este artículo analiza el uso de tres juegos de mesa diferentes, diseñados con el fin de ponerlos en práctica en el aula para revisar contenidos vistos en clase de forma amena. En todos los casos los contenidos están relacionados con la lengua inglesa, incluyendo tanto aspectos teóricos como prácticos y diferentes metodologías como AICLE o inglés para fines específicos. Se dividía en grupos pequeños a los alumnos que participaban en las actividades para fomentar el aprendizaje cooperativo. Estas actividades se han probado en diferentes contextos, en alumnos de distintas edades y en diferentes niveles lingüísticos y académicos. Todos los grupos han acogido de forma muy positiva la revisión de contenidos a través de este tipo de actividades, que, además, han aumentado su motivación en el aprendizaje de la segunda lengua o lengua extranjera.

¹ For generous financial support, thanks are due to the Spanish Ministry of Economy and Competitiveness (grant FFI2014-52188-P).

Palabras Clave: juegos de mesa, aprendizaje cooperativo, gamificación, enseñanza de la lengua inglesa

Abstract

This article examines the use of three different tailored board games, designed to be played in the classroom in order to review contents seen in class in an entertaining, friendly way. In all cases contents are related to English language, including both theoretical and practical perspectives, and different methodologies such as CLIL and ESP. Students taking part in these activities were divided in small groups in order to promote cooperative learning. These ad-hoc games have been tested on students from different backgrounds, age-groups and linguistic and educational levels. All the different groups have welcomed the revision of contents in these activities, which have increased students' motivation in second/foreign language learning.

Keywords: board games, cooperative learning, gamification, English language teaching

Traditionally, games and similar teaching resources have been used with early age students (cf. Alsina 2006). Scholars like Vigotsky (1978), Bettleheim (1987), Ariel (2002, pág. 80) or Hughes (2009, pág. 80) regard play as a device for children to adapt to reality, and solve in an unconscious way problems otherwise difficult to be tackled. Vigotsky (1978) contributes to this idea with his concept of *Zone of Proximal Development* which he defines as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” (1978, pág. 86). Similarly, Alsina (2006, pág. 13) regards play as a bridge between fantasy and reality. However, the action of playing cannot be regarded as intrinsic only of infant learning and development, as it is present in everybody's everyday life, adults and children, as noted by Moyles (1989, pág. 22).

One of the most frequent way to join playing and language teaching is through games. According to Zimmerman (2004, pág. 160), a “game is a voluntary interactive activity, in which one or more players follow rules that constrain their behavior, enacting an artificial conflict that ends in a quantifiable outcome”. Teachers may resort to well-known games and board-games, adapting them to the topic and aims of the lesson or they may create on-purpose games adapted to their students' needs.

The concept of gamification has spread widely in recent years supported by the development of technology, and especially due to the plethora of PC and video games, as well as game apps for other devices, which target an immensely broad audience and which have also been adapted or created for teaching and learning purposes. Thus, gamification has been defined as “a careful and considered application of game thinking to solving problems and encouraging learning using all the elements of games that are appropriate (Kapp 2012, pág. 15-16).” Other scholars have referred to the same idea using similar terms such as ‘edutainment’ or ‘game-based learning’ (cf. Gerber 2014) to indicate the introduction of games or game systems in a learning context.

Educational usage of games has proved a valuable resource in second-language teaching. In certain contexts teachers advocate for the self-production of games and resources which can help their students with difficult linguistic areas (cf. Macedonia 2005). Some scholars opt for online games aimed to different learners with interesting results, such as the platform *Mingoville*, designed for young learners of English (Meyer 2009), and computer simulations with the game *The SIMs*, used to increase vocabulary in an English for Specific Purposes (ESP) classroom (Miller and Hegelheimer 2006) or in general English courses at university level (Ranalli 2008).

Games in second-language classroom should not only be restricted to marginal moments, like at the beginning or at the end of a session, but they may be also useful as a complement to any activity, theoretical explanation, or they may even constitute a proper session to revise contents seen in class (cf. Uberman 1998). A quiz format game can be designed as a review lesson in order to adapt it to the students, their level and the contents seen in class. In fact, the use of quizzes has proved advantageous for students. As shown by Roediger *et al.* (2011), students benefit from doing frequent tests since they strengthen their memory, this advantage is the so-called ‘testing effect’ or ‘active retrieval’ (cf. Karpicke and Roediger 2008). Furthermore, frequent quizzes are also among the strategies employed to increase retrieval and retention of contents (Landrum 2007).

In this article we defend and show that it is possible to use games and similar resources in order to fulfil teaching-learning processes at different ages and with different linguistics levels. We regard games as a useful didactic resource not only for young students but also at any moment during the individual’s academic life. Through the experiences we describe, we will test the productivity of tailored board-games and activities in the

classroom, and the benefits of cooperative learning to increase students' interaction, and also their utility to facilitate the learning process.

Cooperative learning

Dividing students in small groups in order to facilitate review lessons makes these activities into a good example of cooperative learning, since all the members must take part and help each other so that their group obtains the highest possible result. Cooperative learning has been used in different subjects due to the advantages in students' attitude, for their integration and also for its effectiveness on learning (Pujolàs Maset 2008, pág. 303-304). This methodology has been particularly successful in second-language classrooms at any teaching level (cf. McCafferty, Jacobs and DaSilva Iddings 2006), given the high number of techniques and activities available.

Within cooperative learning, Johnson, Johnson and Holubec (1994) suggest paying attention to certain key aspects, such as positive interdependence, individual and group accountability, promotive interaction, interpersonal and small group skills, and group processing. Group distribution offers many advantages in the learning process, as indicated by Johnson *et al.* (1994), who propose that the higher the number of group members, the more resources the group has and the more personal interactions there will be. However, a smaller group can facilitate individual responsibility, since each personal contribution is more visible. Smaller groups make it also easier for the teacher to identify difficulties. Teachers can decide on the type of groups that will be more useful for the activity, and how students are going to be grouped, either following a random distribution, a stratified one depending on the students' level, or allowing students to choose. The concept of positive interdependence refers to the positive effect on the relationships among group members (through the necessary contribution and cooperation among them), which the teacher has to promote through aims, resources, roles and/or tasks (Johnson *et al.* 1994).

Sharan and Shaulov (1990) notice the correlation between motivation and academic achievements in cooperative learning, with manifestations such as perseverance to finish learning tasks, implication in learning, and the will to make efforts in the task. Motivation is an important emotional factor in second language learning, and is particularly distinctive in cooperative learning (cf. Dörnyei 1997; Jacobs and McCafferty 2006, pág. 27). Games in which students play against each other contribute to increase

their motivation (Cohen 1994, pág. 82) and positive interdependence. As noted by Brecke and Jensen (2007), with cooperative learning students feel more motivated by intrinsic elements, such as responsibility and confidence in their own abilities, than by extrinsic ones, such as evaluation.

The activities proposed here are similar to the *Teams Games Tournament* (Slavin 1990; Kagan 1994), where members of each group prepare a given topic and play individually against members from other teams obtaining points for their teams, and also to the *STAD (Students Teams-Achievement Divisions)* (Slavin 1990; Kagan 1994), where team members obtain an individual result depending on the variation with a previous result in a previous game, and the members' individual results are added to the final score of each team. However, in the games described here there are no individual distinctions: all the students take part in the game in a similar way and all of them are needed to answer the questions, all of them must contribute to the group with their own abilities for the group benefit and encourage their mates to do the same. Competition among students, far from being a problem, is a motivating factor within each group, and helps students develop teamwork skills.

Our board games

The games proposed here have been designed as traditional board games, however, they also include the use of ICT tools via presentations, audio, video and media files, which are helpful to test students' knowledge and make the game more appealing. The following sections include a description of each of the games, taking into consideration the board design, the contents included, the mechanics of the game and the experience in the classroom. Furthermore, we provide an account of the different groups that took part in the games.

Get your piece of English

This board-game was designed for English courses at different academic levels, including university and secondary school students, and including a wide range of English levels, from A2 to C1. The board, shown in Figure 1 below, consists of a wheel with an interior circle divided into five different radii, and six different squares placed between each radius in the outer part of the wheel. Those squares are distributed into five different colours and each colour stands for a category. Thus, red stands for grammar; blue for

vocabulary; white for reading and speaking; green for listening, and yellow for curiosities (about different cultures and phenomena around the world). In most categories multiple choice exercises (such as ‘odd word out’, synonyms, gap-filling, and matching, among others) and short answers were favoured to make the game more dynamic. For the listening questions, fragments from different songs were used taking into consideration expressions, vocabulary and pronunciation features seen in class, while questions within reading included short activities such as tongue-twisters or short dialogues from films (to guess the title).



Figure 2. *Get your piece of English*

Students are divided into five groups (of four or five students each) and each group chooses a counter with a specific colour (yellow, green, blue, red, or white). The starting points are the squares placed at the end of each radius. Each team represented by a colour start playing from the square of its colour. The first team to move its counter e the team that gets the highest number throwing the dice in a previous round.

All the members of each team are placed around the board, so they are able to move their counters and to throw the dice on the board. Students are soon familiarised with this game since the mechanics of the game are

similar to the famous *Trivial Pursuit* game but with several adaptations to our classroom.

Teams can choose the direction where they want to move their counter and they will land on a different colour depending on the direction and on the result produced by the dice. In each square they will be asked a question about the content represented by the colour of the square. Questions are shown by means of a PowerPoint presentation and also in small coloured cards, that will be read by a member of the other teams (the teacher might help them to pronounce the difficult words and to understand the meaning if necessary). Points (wedges) can only be obtained in the squares placed at the end of the radii. The winner will be the team that gets more wedges.

The aim of this board-game is to review the main aspects of the English language taught in class, although the game could be adapted into five other different categories depending on the needs of our students and the contents.

Both university and secondary school students showed special interest in the activity, and even less motivated students and those who did not find English language courses appealing got involved in the dynamics of the activity and contributed actively to their teams. Hence, different age groups were enthusiastic about the next review lesson with the game *Get your piece of English* no matter how good or bad their English level was.

Wisdom roulette

The roulette is thought as a review activity as well as an assessment method. Students are asked questions about topics explained in the different units or during the session. Thus, their command of the subject and their attention are evaluated. The teacher divides students into groups trying to form varied groups, that is, students who usually sit together should be separated, and those students who show a high command of the subject should not be in the same group.

The main device to carry out the activity is a roulette game board, which is divided into divided into 36 parts. Each square presents a different colour (white, black, yellow, blue, green, or red) that stands for one of the areas of knowledge, as shown in Figure 2 below. Depending on the contents of the course some of the blocks in the roulette could be emphasized accordingly.



Figure 3. Wisdom roulette

This activity was first tested with a group of students taking part in historical linguistics courses in an English language degree. The methodology in the course follows a Content and Language Integrated Learning (CLIL) approach. The game was designed to review contents from the Middle English period, namely grammar, lexicon, culture, literature, and dialects. Grammar contents included different syntactic developments such as negation, question structures, modals, etc. Lexicon topics contained etymologies, loanwords, semantic fields, and use of the *Oxford English Dictionary*, among others. Regarding culture, some of the most relevant questions concerned main historical events, such as the Battle of Hastings; Kings, Queens and dynasties; and the influence of religion on language. As for literature, most of the questions were about authors and works in four main stages: 1100-1250, 1250-1350, 1350-1400, and 1400-1500. Finally, the content block dealing with dialects comprised Northern, East Midland, West Midland, Southern, and South Eastern dialects.

The activity took place in the lab and the groups of students were distributed among the different groups of computers, all of them controlled by the teacher. The teacher divided students into groups favouring cooperative learning, separating groups of friends and avoiding groups formed by the students with a high command of the subject.

The first group to make the roulette turn was chosen by drawing lots. The *Wisdom Roulette* is divided into several colours, and each colour is found several times. The colour marked by the arrow indicates the content the question belongs to: Grammar (red), Lexicon (blue), Culture (Yellow), Literature (Green), and Dialects (white). The group taking part at the moment is asked a question from the corresponding content block. If they are not able to answer the question, the rest of the groups have the opportunity of giving an answer. The group that gets it right goes on turning the roulette.

The *Wisdom Roulette* includes a sixth colour, black. It stands for a series of questions aimed at all the groups at the same time. Thus, if one of the groups spins the Roulette and the arrow lands on black, the question can be answered by any group. The team that gets it right takes their turn. The aim of the black colour is twofold: on the one hand, it maintains a healthy competitiveness among groups, good for concentration; and on the other hand, if a group is answering correctly all the questions, it offers the possibility for other groups to win the turn.

Who wins the game? This is a review activity, so having a winner is not really important. However, competitiveness helps students to concentrate on the activity. The different teams get a point whenever they answer rightly one of the questions depicted in the black colour; the team that gets a higher amount of points is the winner.

The *Wisdom Roulette* has also been used with different groups of English language learners, and more specifically with teenagers at Secondary School and adults at the Official Language School. Both groups welcomed the activity. In addition to the design of the different content blocks, other changes can be introduced, for instance giving a different use to black, such as ‘lose turn’ or ‘bankrupt’.

Athletic Mind Quiz

This activity was tested on university ESP students in a non-linguistic degree. Their main subject was Sport and therefore the board was adapted in order to make the game more appealing for them.

As shown in Figure 3 below, the board consists in an adapted athletics track, with eight numbered lines, enabling a running event where athletes are small, coloured figures, numbered from one to eight, representing each group. In addition, two field events are included, namely long jump, with

the same athletes, and shot put, which includes eight small coloured balls, standing for the shots. Each colour and number represents a group, and therefore this activity allows up to eight groups to play simultaneously. The fact that all the students are playing at the same time increases their motivation in the game (cf. Faya Cerqueiro 2013).

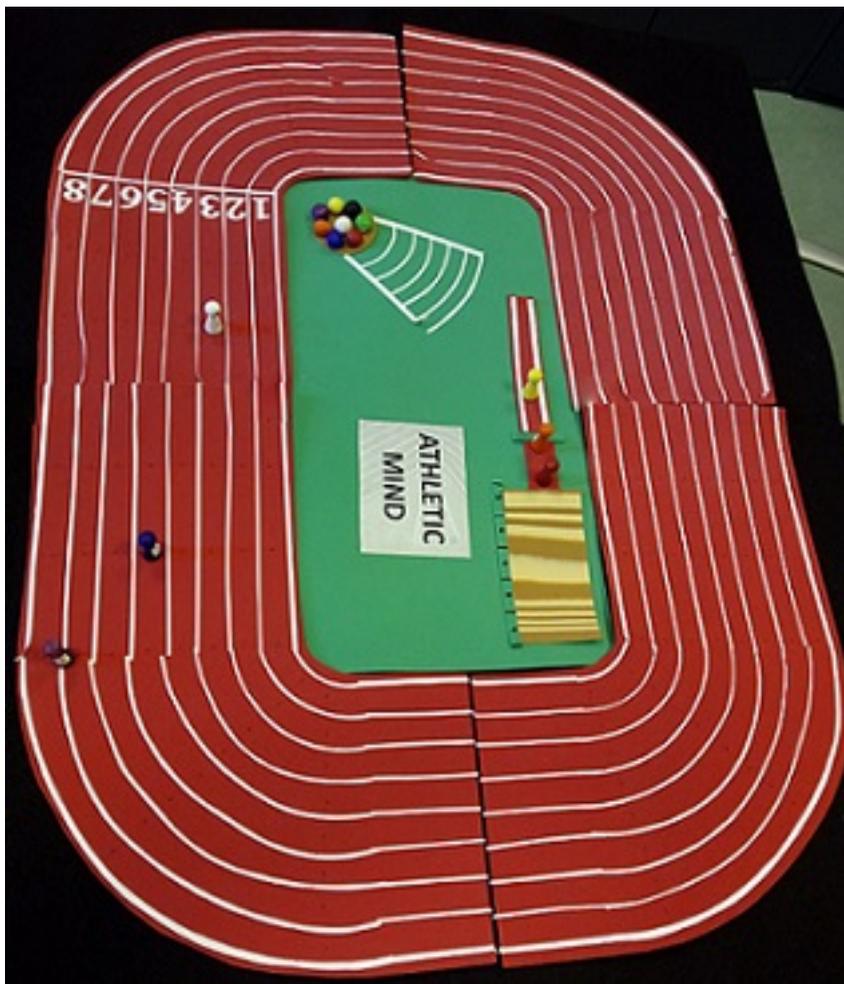


Figure 4. Athletic Mind

All the members are asked to write their answers on a piece of paper in an established time, which varies from question to question depending on

the difficulty. All the groups have to show their answers at the same time and the teacher checks which teams can advance. Thus, questions generally include true/false and multiple choice exercises and short answers that can be answered in a limited period of time.

The three different athletic events represent a three main blocks of contents. Thus, the track, which is the longer part of the game, includes a mixture of questions dealing with grammar, vocabulary, pragmatics and spelling. Each line of the track is divided into 16 smaller squares where the 'runners' can move on when they get a right answer. Then, the long jump runway and pit are divided into 9 different squares and include questions dealing with phonetics. Lastly, the shot put is divided into six different squares and includes translation questions, which comprise fixed expressions used in sport and specific vocabulary.

The game is played twice a semester, and conveniently announced in class, so that students can review contents before the class. As regards the timing, one hour and a half is generally needed to cover the three athletic events, although shorter versions can be used taking into consideration the class slots in the timetable. According to the experiences, it is advisable to have three-member groups if the number of students allows, in order to assign a simple role to each of them, like writing the answer, reading it aloud, and providing possible explanations when necessary.

Methodological outcomes

These activities can be used as a practical support of the theoretical sessions; and can also work as an evaluation tool not only for the students but also for the teacher. All these games try to guarantee the interaction among students and the interaction between the students and the teacher. Although they are mainly aimed at our students, at the end of the academic year, a variant of the games could be put into practice. Through this variant our students could interact with students of a foreign university in a kind of contest.

Although the three games are language-based, the approaches in the various courses are slightly different, since they cover Second/Foreign Language teaching, but also CLIL and ESP methodological teaching. Thus, these tailored quizzes prove to be valuable for several disciplines mainly because they can be easily adapted to the contents of the teaching module students are going to practice.

The last game differs from the previous ones in two characteristics: first, random elements are absent, and second, participation is simultaneous. The use of random elements, such as bankrupt or losing turns contributes to the entertaining part of the game, which is sometimes valued as positive by students, but sometimes some of them may complain about its being unfair because they do not depend solely on their knowledge. Taking into account the different experiences analysed, younger students find random elements more amusing than adults do. The simultaneity of participation in the games is also a controverted issue. The fact that all the students are playing at the same time increases their motivation in the game, but at the same time it may make the game slower and allow less questions, since the teacher has to check all the written answers.

Another main issue regarding the games is when to put these activities into practice. We propose two different ways and two different moments to carry out the activity. On the one hand, (a) it can be used in the classroom at the end of a unit to review the contents explained during the previous sessions. Students are divided into groups and the activity takes place in the classroom. The time devoted to it may vary from 30 to 60 minutes. On the other hand, (b) the game can be put into practice before a modular test, for example before Christmas, Easter and summer holidays, and take longer, up to 90 minutes, depending on the timetable.

Students were asked to provide feedback at the end of each game. They all welcomed the use of board games as review lessons, and valued positively the use of additional ICT materials during the games. The motivational effect of the games was highlighted as an important issue to increase active participation. All the board games presented here fulfilled their purposes as review lessons, since all the students admitted their usefulness to recall the contents seen in class. As regards the ideal moment to play these games, most of the students preferred to do them at the end of each unit rather than just at the end of the course or every week. Concerning the possibility of including their performance in the quizzes as part of their final mark, the majority of the students refused this idea, and this perception was more evident in those games including random elements.

Games can be customised depending on our students and purposes of the activity. Squares can be given different values and different rules can be added. It is important to keep the game as dynamic as possible in order to avoid boredom or loss of interest. The rules have to be easy to learn so that everyone understands how to play; they have to be clear from the beginning

in order to anticipate any ambiguous situation during the game. With small groups teachers can make use of more creative strategies making their students part of the game, including their names or even their pictures into different squares or asking them to design their own questions.

Similarly, board games designed for ESP courses can be customised according to the main subject of our students. Thus, for Nursing students we could include a syringe as the scoreboard or create different rooms in a hospital as the squares of our board. For a group of Business students we could design a game in which we distribute rewards as stocks, bonds and deposits or handle fake money.

One of the main advantages of the use of board-games is immediate feedback, since all the students benefit from the corrections and explanations provided by the teacher after each question is answered. The customisation of the content blocks in each game enables the revision of those areas which present more difficulties for the students. The organisation of contents in the games can serve as a basis to prioritise knowledge and therefore as a guide for students since more relevant concepts may be easily highlighted.

The cooperative learning methodology used in the different games contributes to the active participation of all the students, and fosters intragroup discussion among the students who want to find out the right answer as soon as possible. In addition, intergroup comments are encouraged before correcting the answers and when feedback is provided. During in-group question-solving discussions all the members of the group comment on their opinions and the reasons that support their answers, stimulating thus content retrieval.

Concluding remarks

The different review games presented here were especially designed for English language learners in several contexts. They were tested on different groups with positive results in the teaching-learning process. Thus, board-games can be tailored to review contents seen in class, prioritising those aspects that need to be checked again. A whole session can become a review lesson without causing boredom and without the typical pressure a student must cope with in a test.

These games bring along several advantages in the English language classroom, as they increase interest and participation in the class and serve

as a useful learning tool for students, who get used to the questions they may find in a final test or exam and check which linguistic areas they should devote more attention to. Students of any age also value positively their teachers' effort in designing a board and customising a whole activity for them.

Cooperative learning favours interaction among students and develops metacognition. In addition, in-group discussion forces information retrieval. Students get more motivated when learning through gamified quizzes, while the teacher is able to organise and rank those contents which may be more valuable or necessary for the students to review. The students' performance in any of these games provides teachers feedback on the assimilation of contents, and helps to identify possible limitations which can be reinforced immediately through further explanations or taken into consideration to design extra activities.

References

- Alsina, Á. (2006). *Desarrollo de competencias matemáticas con recursos lúdico-manipulativos*. Madrid: Narcea.
- Ariel, S. (2002). *Children's Imaginative Play: A Visit to Wonderland*. Westport: Greenwood Publishing Group.
- Bettleheim, B. (1987). *A Good Enough Parent: A Book on Child-Rearing*. New York: Knopf.
- Brecke, R. and Jensen, J. (2007). Cooperative learning, responsibility, ambiguity, controversy and support in motivating students. *Insight: A Journal of Scholarly Teaching*, 2 (1), 57-63.
- Cohen, E. G. (1994). *Designing Groupwork: Strategies for the Heterogeneous Classroom*. New York: Teachers College Press.
- Dörnyei, Z. (1997). Psychological Processes in Cooperative Language Learning: Group Dynamics and Motivation. *The Modern Language Journal*, 81 (4), 482-493.
- Faya Cerqueiro, F. (2013). Actividades lúdicas de repaso y su función motivadora en lenguas para fines específicos. *Encuentro: Revista de investigación e innovación en la clase de idiomas*, 22, 38-52.
- Gerber, H. (2014). Problems and Possibilities in Gamifying Learning: A Conceptual Review. *Internet Learning Journal*, 3 (2), 46-54.

- Hughes, F. P. (2009). *Children, Play, and Development*. 4th edition. London: SAGE Publications
- Jacobs, G. M. and McCafferty, S. G. (2006). Connections between cooperative learning and second language learning and teaching. In McCafferty, S. G., Jacobs, J. M. and DaSilva Innings, A. C. (Eds.). *Cooperative Learning and Second Language Teaching*, 18-29. Cambridge: Cambridge University Press.
- Johnson, D. W, Johnson, R. T. and Johnson Holubec, E. (1994). *Cooperative Learning in the Classroom*. Virginia: Association for Supervision and Curriculum Development.
- Kagan, S. (1994). *Cooperative Learning*. San Clemente, CA: Kagan Cooperative Learning.
- Kapp, K. M. (2012). *The Gamification of Learning and Instruction: Game-based Methods and Strategies for Training and Education*. San Francisco: Pfeiffer.
- Karpicke, J. D. and Roediger, H. L. (2008). The critical importance of retrieval for learning. *Science*, 319 (5865), 966-968.
- Landrum, R. E. (2007) Introductory psychology student performance: Weekly quizzes followed by a cumulative final exam. *Teaching of Psychology*, 34 (3), 177-180.
- Macedonia, M. (2005). Games and foreign language teaching. *Support for Learning*, 20 (3), 135-140.
- Meyer, B. (2009). Learning English through serious games – Reflections on teacher and learner performance. In Pan, Z., Cheok, A. D., Chang, M. and Müller, W. (Eds.). *Transactions on Edutainment III*, 82-92. Berlin: Springer-Verlag.
- Miller, M. and Hegelheimer, V. (2006). The SIMs meet ESL Incorporating authentic computer simulation games into the language classroom. *Interactive Technology and Smart Education*, 3 (4), 311-328.
- McCafferty, S. G.; Jacobs, G. M. and DaSilva Iddings, A. C. (2006). *Cooperative Learning and Second Language Teaching*. Cambridge: Cambridge University Press.
- Moyles, J. R. (1989). *Just Playing?: The Role and Status of Play in Early Childhood Education*. Philadelphia: Open University Press.
- Pujolàs Maset, P. (2008). *Nueve ideas clave: El aprendizaje cooperativo*. Barcelona: Graó.

- Ranalli, J. (2008). Learning English with *The Sims*: exploiting authentic computer simulation games for L2 learning. *Computer Assisted Language Learning* 21, 5, 441-455.
- Roediger, H. L., Agarwal, P. K., McDaniel, M. A., and Mcdermott, K. B. (2011) Test-enhanced learning in the classroom: Long-term improvements from quizzing. *Journal of Experimental Psychology: Applied*, 17, 382-395.
- Sharan, S. and Shaulov, A. (1990). Cooperative Learning, Motivation to Learn and Academic Achievement. In Sharan, S. (Ed.). *Cooperative Learning: Theory and Research*. New York: Praeger.
- Slavin, R. E. (1990). *Cooperative Learning: Theory, Research, and Practice*. Needham Heights, Massachusetts: Allyn and Bacon.
- Uberman, Agnieszka. 1998. The use of games for vocabulary presentation and revision. *Forum*, 36 (1), 20-27.
- Vygotsky, L.S. (1978). *Mind and society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Zimmerman, E. (2004). Narrative, interactivity, play, and games: Four naughty concepts in need of discipline. In Wardrip-Fruin, N. and Harrigan, P. (Eds.). *First Person: New Media as Story, Performance, and Game*, 154-164. Cambridge, MT: MIT Press.

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