Do business games foster skills? A cross-cultural study from learners' views

Ana Beatriz Hernández-Lara[1] , Enric Serradell-Lopez[2] ,
Àngels Fitó-Bertran[2]

[1]*Universitat Rovira i Virgili (Spain)*

[2]*Universitat Oberta de Catalunya (Spain)*

anabeatriz.hernandez@urv.cat, eserradell@uoc.edu, afitob@uoc.edu

Abstract

Purpose: This study seeks to analyse students' perception of the effectiveness of business games as an e-learning method in management training. This analysis of games' effectiveness is centred in the generic and managerial skills acquired, through the comparison of students' opinions in different cultural contexts within Europe.

Design/methodology: The analysis focuses on 120 management students at postgraduate level who use the same business game at different universities in five European countries: Spain, Ireland, Portugal, Italy and Germany.

Findings: The results indicate that students positively assessed the generic and specific managerial skills fostered by the business game. The generic skills most valued were information and decision-making, and leadership. Regarding the specific skills, the most valued were management skills and the least valued, skills related to planning and the acquisition of theoretical knowledge. However, significant differences were found between students in different cultural contexts and education systems in the case of certain specific managerial skills.

Practical implications: This finding suggests that the students' perception of how a business game helps them acquire specific managerial skills is influenced by cultural aspects and previous exposure to experiential learning, which determine that the teachers' role and the teaching process should be adapted to the students' learning model.

Originality/value: With this study, a better knowledge about the students' perception of this e-learning method is obtained, not just considering a specific educational environment, but comparing opinions of students from different cultural contexts, which adds value to the analyses developed.

Keywords: E-learning, Business games, Generic skills, Specific managerial skills, Cross-cultural study

Jel Codes: M1

1. Introduction

Since the late 1990s, the European university system has been implementing significant changes in order to develop the European Higher Education Area (EHEA). The objectives and values of the EHEA have provoked

a wide range of institutional reforms that seek greater recognition and uniformity of university degrees in order to facilitate students' mobility, in both academic and job-related activities among European countries (European Commission, 2009; EHEA, 1999). Also, these reforms include measures to improve the employability of higher education graduates, to enhance skills/experience for employability, to provide better support for transition to the labour market and to further develop skill-forecasting tools (European Commission/EACEA/Euridyce, 2013).

The new model that has emerged from the EHEA's principles underlines the relevance of learning processes, learning outcomes, competencies and skills that students must acquire. Student learning is defined in terms of continuous assessment of student workload, learning by doing and the acquisition of skills, broadening the teaching dimension of higher education and approaching it from a wider perspective instead of just as the mere transmission of theoretical knowledge (Traver & García, 2006). In this new model, the university teacher becomes a driving force for these changes, facilitating the teaching-learning process and developing a collaborative role with the student (Benito, 2009; Hernández, Gorjup & Cascón, 2010). The training process developed at the university places the student in the starring role, making them responsible for building their own knowledge and competency profile.

The competency-based learning model requires that European universities make significant efforts to implement unconventional learning methods, many of them focused on new information and communication technologies (ICT) and e-learning, that help to develop students' skills and abilities, in contrast to traditional learning methods mostly based on transferring content and knowledge (Fernández-March, 2003).

These new demands for new and more applied learning methods exist in multiple academic fields, and business studies are not an exception. Among the different new learning methods, simulation-based educational products, such as business games, are considered excellent tools, illustrative of the business reality, and used exceedingly in student centred learning in management training (Siddiqui, Khan & Akhtar, 2008).

The main objective of this study is to analyse the effectiveness of a business game from the learners' point of view. Specifically, this study aims to analyse students' perception of a business game, in terms of the generic and specific managerial skills acquired. The focus is on comparisons among students of postgraduate management courses in different European countries. By doing so, this study aspires to obtain an impression about the students' perception of this e-learning method by comparing opinions from different cultural contexts, all of them affected by the new European education model, but also influenced by their former education systems, their own perspective about experiential learning and their different educational styles and culture.

2. Effectiveness of business games and research questions

Business games are considered a relevant e-learning method in management training by playing (Chang, Lee, Ng & Moon, 2003; Faria & Dickinson, 1994; Faria, Hutchinson, Wellington & Gold, 2008; Siddiqui et al., 2008; Tao, Yeh & Hung, 2015; Wolfe & Sauaia, 2005). They consist of simulating a business environment in which participants make decisions in teams regarding different functional areas of an online company, and compete with classmates, who represent other firms (Faria & Dickinson, 1994; Faria et al., 2008). Other business games simulate the business processes of startups (Kriz & Auchter, 2016) fostering entrepreneurial competences.

Previous research has recognized some of the relevant benefits of this e-learning method. Some of them are related to the games' characteristics; for example, an environment in which students become active builders of their knowledge, and where they have greater autonomy that increases the intrinsic motivation. They also provide immediate feedback, the possibility of observing key factors in an on-the-job situation, and the possibility of practising in a competitive environment that could enhance their motivation (Eseryel, Law, Ifenthaler, Ge & Miller, 2014; Fu, Su & Yu, 2009; Zantow, Knowlton & Sharp, 2005; Urquidi & Tamarit, 2017). These benefits depend on the intrinsic characteristics of this educational method, which combines some of the common advantages of e-learning tools, which are not limited by time or space restrictions (Benito, 2009; Sun, Tsai, Finger, Chen & Yeh, 2008), with other benefits specific to simulation methods. These latter methods establish a bridge between education and the actual operation of a business while avoiding the risk of real decisions and the

apprehension of failures or reprisal (Fu et al., 2009; Zantow et al., 2005), letting students to gain insight by instantly staging the consequences of their actions and strategies in a short span of time (Siddiqui et al., 2008).

However, the literature on business games has not only considered the beneficial characteristics of business games, but also this method's capacity to develop competencies, skills and abilities among students. Some of the skills most frequently referred to in studies of business games are becoming increasingly more valued by the business market. Some of them could be considered generic or transferable skills (ANECA, 2005), such as the development of analytical techniques, teamwork, leadership, decision-making, problem solving, information management, project management, etc. (Doyle & Brown, 2000; Eseryel et al., 2014; Faria & Dickinson, 1994; Zantow et al., 2005; Geithner & Menzel, 2016), whilst some others are referred to as more specific skills, related to the different academic disciplines, including particular knowledge of a thematic area (ANECA, 2005).

This distinction between two different sets of skills, generic and specific, is one of the basis of the EHEA's competency concept. As the Tuning Project states, generic skills are shared or transferable attributes which could be general to any degree. These are certain attributes that, in a changing society, can offer more possibilities for employment. Specific skills, on the other hand, are subject-area related. They are academic-subject specific skills, which are intimately related to specific knowledge of a field of study.

Literature analysing the skills fostered by business games has been centred on the first type of generic skills described above (Fitó-Bertran, Hernández-Lara & Serradell-López, 2015; Tao et al., 2015). One explanation could be that there is no consensus on what the specific skills in management training should be, with an amount of discretion being shown by universities and schools when designing their study programmes. Tymon (2013), in a research about students' perception on employability, provides a comparison of six frameworks from numerous perspectives. These frameworks include universities from different countries. This author, supporting previous works (Harvey, 2005; Yorke, 2006) stated that there are significant differences in the items included in the different sources, and therefore there is not an agreement on what employability is and what specific skills are related with.

Other interesting aspect to consider in the assessment of the effectiveness of business games is related to the implications of the different cultures to which the students belong. As Morgan (2000) stated in a work on the role played by cultural background in relation to certain simulation and gaming scenarios, "the cultural, social, and ethnic background of an individual influences many aspects of their behaviour and their likely responses to environment. These responses include the individuals' reactions to computer-based simulations and therefore the potential success of any interactive learning environment". Therefore, different reactions and considerations from individuals of different cultural contexts could be also expected when using a business game because of the different cross-cultural attitudes of individuals towards technology, interactive learning environments, causality, gambling, and business (Morgan, 2000).

Even in the European context, despite the efforts of seeking a greater uniformity at an educational level and the desire to construct a new and common model for the entire region based in the EHEA's principles (European Commission, 2009; EHEA, 1999), significant cultural differences still remain, which exert relevant influences on the students' learning processes and outcomes.

One of most widely used frameworks for studying cross-cultural dimensions is based on the work conducted by Hofstede (2001), who developed a five-dimensional model of cultural differences, which can be used to characterise cultural behaviours of different societies. These five cross-cultural dimensions were power distance, individualism-collectivism, uncertainty avoidance, masculinity-femininity and long-term/short-term orientation. Hofstede (2001) provided strong evidence regarding how differences in national and regional cultures affect work values and have implications for education systems.

The Hofstede model of cultural differences is not free of criticism; its usefulness has been questioned also in virtual environments because the cultural differences that the model highlights are centred in nationality. However, it remains as a well-known and recognised model to identify relevant cross-cultural dimensions.

Given the characteristics of business games as an educational method, the most interesting dimensions of Hofstede model of cross-cultural differences are power distance and uncertainty avoidance.

The power distance index (PDI) is related to how people react to inequality and how they accept the unequal distribution of power. In a large power distance situation, the educational process is teacher centred; teachers outline the intellectual paths to be followed. In such a system, the quality of an individual's learning is virtually exclusively dependent on the excellence of their teachers or instructors. In a small power distance situation, the educational process is student centred, with a premium on students' initiative. The quality of learning is to a considerable extent determined by the excellence of the students (Hofstede, 2001, pp. 100-101). These two scenarios of power distance contribute to the open debate in the literature of business games regarding the functions and usefulness of instructors, whose presence in the classrooms could be totally or partially substituted by ICTs (Hernández et al., 2010).

The uncertainty avoidance index (UAI) is defined as the mechanism to cope with life uncertainty. In the relationship between uncertainty avoidance and education, it can be observed that students from high-UAI countries expect their teachers to be experts who have all the answers. Intellectual disagreement in academic matters is interpreted as personal disloyalty. Students in high UAI-countries are less likely to attribute their achievements to their own ability than are students in low-UAI countries; management habits, risk orientation and tolerance for ambiguity are also valued differently (Hofstede, 2001, pp. 162-163). Business games constitutes excellent tools to expose students to uncertain environments and practice the ability to cope with decisions whose results are strongly influenced by environmental forces out of students' control. Cultural differences of students exert a significant influence on how they manage the uncertainty dimension when participating in business games.

Taking into account these contributions of previous research, some important gaps can be highlighted in studies that assess the effectiveness of business games. First, there is no consensus nor a clear classification of the aspects considered when evaluating a business game, mixing the beneficial characteristics of these games with certain learning outcomes, like competencies and skills (Chang et al., 2003; Faria & Wellington, 2004; Jensen, 2003). In this unclear context, specific managerial skills have been mostly neglected (Fitó-Bertran Hernández-Lara & Serradell-López, 2014a, 2014b).

Secondly, there are relevant differences among the cultural context to which the students belong, even those included in the EHEA, and these may affect the learning process, its outcomes, and, more specifically, the students' perception about them (Fitó-Bertran et al., 2015). Some of the important limitations to previous research stem from the fact that it has been mostly based on the Anglo-Saxon context (Faria & Wellington, 2004), and there is a scarcity of comparative studies on different cultural contexts (Chang et al., 2003). Some important exceptions could be mentioned, like the study by Chang et al. (2003), Tinney, Bentley and Chia (2005), and Madni (2013), but none of them developed cross-cultural comparisons among different cultural contexts to determine the similarities and differences when perceiving the effectiveness of business games. In this regard, we think that this comparison would be especially relevant in the European context, where the studies are scarcer, and there is a tension between the homogeneous trends on education promoted by the EHEA, on one hand, and the different cultural contexts that already coexist, on the other.

The main objective of this study is two-fold. The first aim is to explore how students in different European countries view business games in terms of the skills fostered by this e-learning method by classifying these skills in different categories: generic and specific managerial skills. Thus, the first research question is:

RQ 1: What are the generic and specific managerial skills that students from different European countries value most when they determine the effectiveness of a business game?

The second aim consists of determining whether the use and utility derived from the business game is the same regardless of the cultural context to which the students belong. Therefore, the second research question is established as follows:

RQ 2: Are there significant differences in the assessments made by students from different cultural contexts in Europe in terms of the skills fostered by the business game?

3. Methodology

3.1. Data collection

For the purpose of this study, we considered the business game Global Challenge (https://www.cesim.com/simulations/cesim-global-challenge-international-business-strategy-simulation-game), which is a management and strategy game that allows players to foster some key learning areas, like technology-based product road maps, global market and production strategies practicing decision-making by integrating various management-related disciplines. Global Challenge simulates a business context in which the teams of players develop and execute strategies for an international mobile telecommunications company operating in the USA, Asia and Europe. The focus of this game is centred in strategic management and international business, and seeks that students gain a good sense of interaction between the different parts of the business and the financial implications of the various strategic and operational decisions.

Data from students, users of this game, were collected to answer the research questions. The participants were postgraduate management students, due to the frequency with which this e-learning method is used at this level, especially in public universities. To obtain the data, we first searched for universities that used Global Challenge. We contacted 13 universities around Europe, although only 5 finally accept to be part of the study.

As a second step, regular contacts were made with the professors responsible for the business game in each university to agree under which conditions the game was going to be administered, and the characteristics of the students that were going to participate in this educational experience. The game was organized into seven rounds, played at weekly intervals, during 4 hours per week, and developed face-to-face, with the physical presence of the instructor during the decision-making process. Participants formed groups with a similar number of members. The purpose was to ensure similar design requirements when playing.

As a final step, the study was conducted in 5 groups of postgraduate management students from 5 different countries – Spain, Ireland, Portugal, Italy and Germany – during the academic years from 2009 to 2013. The group for Spain comprised 39 students, the Irish group had 31 members, and there were 26, 8 and 16 students in the groups for Portugal, Italy and Germany, respectively. The sample of students who participated in this educational experience shared the same nationality in each country.

3.2. The questionnaire

Data were gathered through a questionnaire(Chang et al., 2003; Faria & Wellington, 2004; Jensen, 2003; Rachman-Moore & Kennett, 2006) on the skills fostered by the business game, using some questions that previously appeared in the literature (Arias-Aranda, Romerosa-Martínez, Navarro-Paule, Haro-Domínguez & Ortega-Egea, 2008; Faria & Wellington, 2004; Fu, et al., 2009). The questionnaire was distributed among the students during the game, specifically in the fifth round, and using an online platform that collected and offered their responses to the professors automatically.

The questionnaire finally used was extracted from Fitó-Bertrán et al., (2014b), because it considered several sources to obtain and validate the items. Firstly, it was constructed on questions previously considered in the literature of business games interested in analysing the skills fostered by these games, and those that appeared in the Tuning project and the White Paper on the Degree in Economy and Business. Secondly, the suitability of the items was discussed by a focus group composed by 14 students from different countries, to be sure that the different perceptions of students on the skills fostered by the business games were taken into account. And finally, in order to improve its reliability, it was revised by two expert instructors and tested on 16 students who were participating in a business game as part of a different subject.

The original questionnaire of Fitó-Bertrán et al. (2014b) was discussed by the professors responsible of administering the business game in the universities that participated in this study, with the purpose of avoiding

potential bias, misunderstanding of the items, or influences of one specific culture or nationality in the items construction. As a consequence of this discussion, two items were removed from the original questionnaire, but it was the only change. The questionnaire was originally written in English and was also distributed in the different countries in this language, not being necessary its translation.

The final version of the questionnaire applied in this study was composed by three parts. The first part included questions dedicated to capture the students' profile. The second part contained 23 questions on generic skills that the game helps foster and improve. The third part included 14 questions on specific managerial skills (See Appendix 1). These last two parts of the questionnaire used a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.3. Measurement of variables

Given the high number of skills and the clear relationship between some of them, we considered it appropriate to group items together by type of skill in order to obtain a clear image of the main skills acquired by students when using a business game.

Generic skills: To obtain the different types of generic skills, we applied k-means clustering (MacQueen, 1967), which is commonly used to automatically partition a data set into k groups. Determining the eigenvalues and selecting those greater than one, we obtained six groups (k=6).

The first group contained item numbers 1, 2, 3, 4 and 16, which encompassed the generic skill related to information processing and decision-making. The second group contained items 5 and 6, which were related to time management. The third group included items 13, 14 and 15, which involved skills related to entrepreneurship and change. The fourth group, comprising items 10 and 11, was related to conflict management. The fifth group contained items 7, 8 and 9, which involved the ability to use ICT (163.33). Finally, the last group of items, 12, 17, 18, 19, 20 and 21, was related to leadership skills (323.73). After the clustering analysis, we calculated the average of the items grouped in each factor to obtain the values for each generic skill. The within cluster sum of square was 280.4 for information processing and decision-making; 56.5 for time management; 103.33 for entrepreneurship and change; 65.5 for conflict management; 163.33 for the ability to use ICT; and 323.73 for leadership.

In order to measure scale reliability, we used Cronbach's alpha (Cronbach, 1951). The Cronbach's alpha coefficient for the whole group of generic skills was 0.884, for information processing and decision-making was 0.66; 0.72 for time management; 0.83 for entrepreneurship and change; 0.77 for conflict management; 0.81 for the use of ICT; and 0.85 for leadership. As it was suggested by Nunnally (1967) and Huh, Delorme and Reid (2006), in the first stages of a research study or in exploratory and descriptive studies, Cronbach's alpha coefficients of 0.6 or higher are considered acceptable.

Specific managerial skills: This set of skills was also grouped applying k-means clustering. In this case, the 14 items were divided into three groups, considering the eigenvalues greater than one.

The first group comprised the first five items and corresponded to different tasks and skills related to administration and management. The second group included item numbers 8, 9, 10, 11, and 14, which referred to planning and theoretical knowledge. Finally, items 6, 7, 12, and 13 formed the third group, which was related to managerial roles and risk. The within cluster sum of square was 181.37 for skills related to administration and management; 318.63 for those related to planning and theoretical knowledge; and 192.07 for managerial roles and risks. The Cronbach's alpha coefficient for the group of specific managerial skills was 0.9. In the case of specific management skills, the Cronbach's alpha was 0.88; 0.79 for planning and theoretical knowledge; and 0.78 for skills related to managerial roles and risk. Again, we calculated the average of the items grouped in each factor to obtain the values for each specific managerial skill.

Students' profile: We included questions about gender, managerial background, nationality, and previous experience with business games and in managerial decision-making. Previous experience with business games

and managerial background were measured as dichotomous variables. Finally, cultural context was determined on the basis of the students' nationality.

Figure 1 shows PDI measures for the five nationalities considered in our study. Portugal, Spain and Italy are considered High PDI countries while Germany and Ireland are considered Low PDI countries.
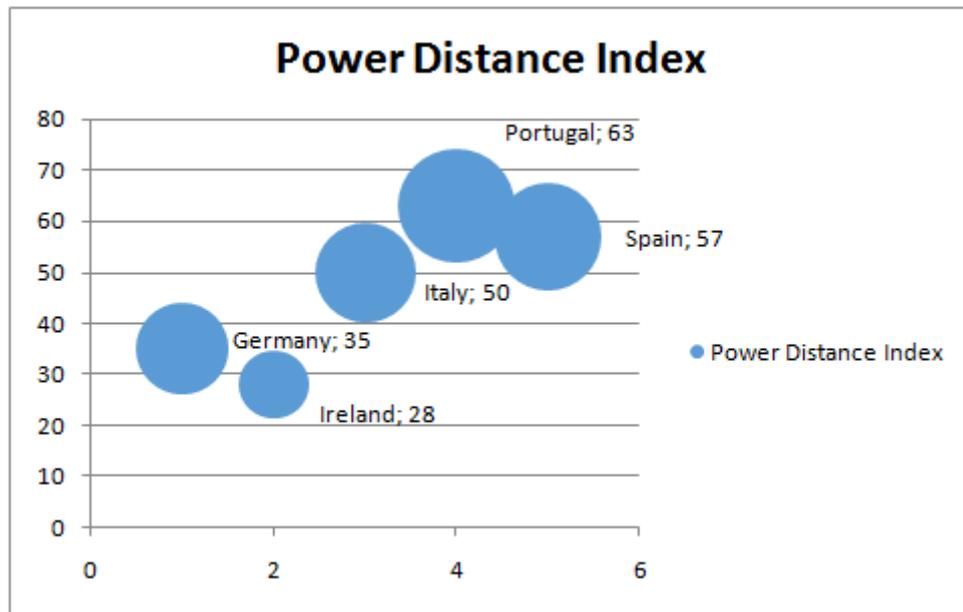

Figure 1. Power Distance Index. Source: Adapted from Hofstede (2001, pp. 127)

Figure 2 shows UAI measures for the five nationalities considered in our study. Portugal, Spain and Italy are considered High UAI countries while Germany and specially Ireland with lower scores than the three Mediterranean countries are considered Low PDI countries.
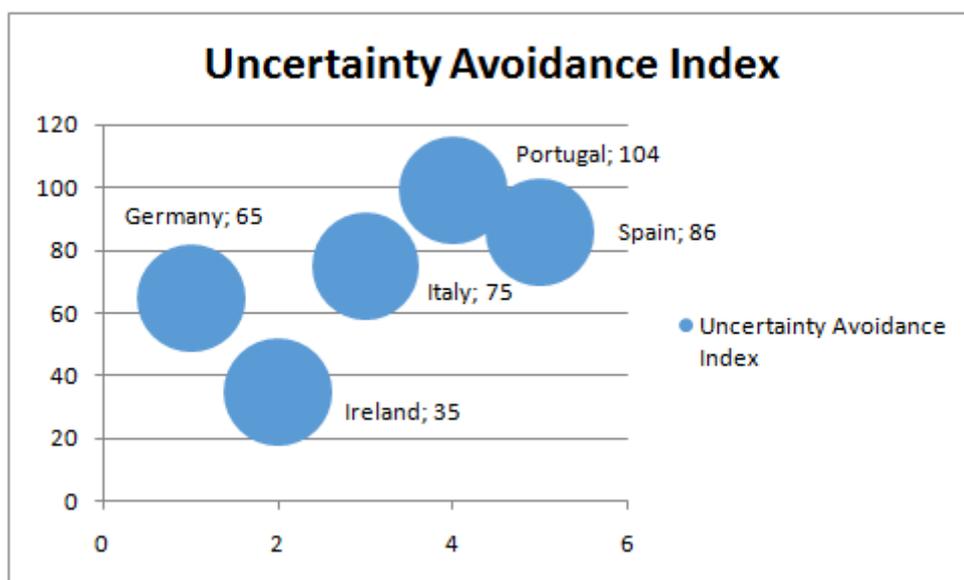

Figure 2. Uncertainty Avoidance Index (UAI). Source: Adapted from Hofstede (2001, pp. 151)

At the end, two cultural contexts were considered, so this variable was measured as a factor with two levels, level 1 included students of cultures with high levels of PDI and UAI indexes, named Group A, and level 2 referred to students of cultures with low levels of PDI and UAI indexes, named Group B.

4. Results

All statistical analyses were carried out using R, version 3.1.2 (R Core Team, 2014).

Table 1 shows how frequently different characteristics appeared in the students' profile.

Student profile	Spain (n=39)	Portugal (n=26)	Italy (n=8)	Germany (n=16)	Ireland (n=31)	Group A (n=73)	Group B (n=47)
Women	0.487	0.385	0	0.375	0.548	0.397	0.489
Men	0.333	0.385	0.125	0.625	0.387	0.329	0.468
Managerial profile	0.769	0.731	1.000	1.000	0.258	0.781	0.511
No managerial profile	0.231	0.269	0.000	0.000	0.742	0.219	0.489
Previous experience with business games	0.513	0.269	0.000	0.563	0.032	0.370	0.213
No previous experience with business games	0.436	0.731	1.000	0.438	0.968	0.603	0.787
Previous experience in managerial decision making	0.410	0.154	0.25	0.000	0.613	0.301	0.404
No previous experience in managerial decision making	0.564	0.846	0.75	0.000	0.387	0.685	0.255

Table 1. Frequency of characteristics of the students' profiles by country and cultural system

Table 1 shows that in terms of gender, with the data available, we could observe a majority of women in the Spanish and Irish groups, and more men in the German group and among the Italian players, where all the participants were men, although many students decided not to answer this question. Comparing cultural contexts, both groups had a majority of women, although the differences were just marginal. Regarding the students' managerial profile, most of the students participating in the business games had previous experience working in business or had taken business courses, with the Irish group being the only exception. Most of the students, however, did not have any previous experience with business games, except those in the groups for Spain and Germany. Finally, most of the students did not have a relevant previous experience making managerial decisions, with the exception of the Irish group. An exception can also be observed when comparing groups A and B, as there was a slight majority of people with previous experience in this kind of decision-making in group B. However, it must be considered that many students from group B did not answer this item in the questionnaire.

Tables 2 and 3 show the descriptive statistics and analyses to check for differences among the groups of students from each country and from different cultural contexts, in terms of their perceptions of generic skills.

Generic skills	Spain		Portugal		Italy		Germany		Ireland		K-W χ2
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	
1. Information and decision making	3.94	0.57	3.94	0.52	3.7	0.44	3.75	0.47	4.08	0.59	6.11
2. Time management	3.58	0.96	3.83	0.75	3.37	0.88	3.47	1.06	3.56	0.82	2.59
3. Entrepreneurship and change	3.61	0.93	3.47	1.15	3.83	0.67	3.44	0.87	3.66	0.75	1.34
4. Conflict	3.55	0.93	3.19	0.96	3.62	0.91	2.78	1.06	3.55	1.16	8.79+
5. Use of ICT	2.93	0.98	2.95	1.29	3.29	1.05	3.02	0.74	3.12	0.86	1.68
6. Leadership	3.89	0.62	3.70	0.86	4.10	0.41	3.45	0.75	4.11	0.66	12.06*

H0: mean ranks not differ between groups - H1: mean ranks differ between groups***$p<0.001$; **$p<0.01$; *$p<0.05$; +$p<0.1$

Table 2. Descriptive statistics on generic skills by country and analyses of variance

Generic skills	K-W c² (Group A)	M-W U test (Group B)	Cultural contexts: group A and B						
			n (A)	Mean (A)	sd (A)	n (B)	mean (B)	sd (B)	t-Student
1. Information and decision making	0.2387	1137.5	73	3.91	0.54	48	3.97	0.57	0.54
2. Time management	0.6822	1342.5	73	3.64	0.88	48	3.53	0.90	-0.68
3. Entrepreneurship and change	1.4775	1170.5	73	3.58	0.99	48	3.56	0.79	-0.13
4. Conflict	0.0882	1219.5	73	3.43	0.94	48	3.27	1.17	-0.80
5. Use of ICT	0.4021	1161.5	73	2.98	1.10	48	3.07	0.82	0.53
6. Leadership	0.1286	1024.5	73	3.85	0.70	48	3.88	0.75	0.28

H0: mean ranks not differ between groups - H1: mean ranks differ between groups***$p<0.001$; **$p<0.01$; *$p<0.05$; +$p<0.1$

Table 3. Descriptive statistics on generic skills by education system and analyses of variance

Table 2 points out the means and standard deviations of each generic skill in each country, and the Kruskal–Wallis one-way analysis of variance. The most valued generic skills were information and decision-making, occupying the first or second position in almost all the groups, and leadership, which was the most valued generic skill in Ireland and Italy and the second one in Spain. The least valued generic skills fostered by the business game were the use of ICT, followed by conflict management. However, significant differences were only observed among the groups of students in the case of leadership ($\chi2 = 12.0622$; $p < 0.05$) and conflict ($\chi2 = 8.795$; $p < 0.1$) when considering their nationalities.

Table 3 shows statistics comparing the mean values for generic skills for the three countries in group A and the two countries in group B, separately, followed by the differences between both groups. However, the findings confirm that there are no significant differences in the mean values for generic skills among either the countries of group A or B. Comparing A and B, no significant differences could be observed for any of the generic skills either.

Table 4 and 5 states the means and standard deviations for the specific managerial skills, and also the analyses of variance. The results confirm that the most valued specific managerial skill was related to management, whilst the least valued was the planning and theoretical knowledge boosted by the game. Furthermore, some significant differences were observed. Specifically, when all the countries were compared separately, significant differences were detected in the game's effectiveness in fostering skills related to planning and theoretical knowledge ($\chi2 = 8.9407$; $p < 0.1$). In addition, when we compared groups A and B, significant differences were noted in the perception of students belonging to both groups for management ($\chi2 = 1.926$; $p < 0.05$), as well as planning and theoretical knowledge ($\chi2 = 1.816$; $p < 0.1$). The mean values indicate that the assessment made by students in group B for these two specific skills was more positive than the values given by students in group A.

So, all in all, the analyses support the conclusion that students' nationality and, more specifically, their belonging to a particular cultural context does not seem to affect their perception about the effectiveness of the business game in promoting generic skills, but it does affect their perception about the effectiveness of the game in helping them gain certain specific managerial skills.

Although this paper does not report on how possible differences in the profile characteristics of the students could impact on the acquisition of skills, these analyses were also carried out, in order to confirm that the significant differences detected were not due to differences in the students' profiles. The results obtained confirm significant differences only in the case of generic skills, not for specific managerial ones.

To gain a higher robustness in the results and to better visualize them, two principal components analyses (PCA) were also carried out, shown in Figures 3 and 4. The first score plot, based on generic skills and shown in Figure 3, points out two principal components that together account for 65.5% of total data variance. With the inclusion of the third principal component, a 79.9% of the data variance would be captured. The first component (49.1% of total variance captured)is mostly influenced by conflict, entrepreneurship and change. The second component captures variance (16.4%) mostly influenced by the use of ICT in contrast to the rest of generic skills. The third component describes variance (14.3%) explained mainly by time management and

conflict. The figure exhibits only the first two principal components, to simplify the analysis, and shows no clear differentiation between the valuations of generic skills among students in either group A or B, represented with "plus" and "circle" symbols respectively.

Regarding the second score plot in Figure 4 for specific managerial skills, we find the projection onto the two first principal components, which accounts for 88.8% of the total data variance. The first component (72.3% of total variance captured) is influenced almost the same by the three specific managerial skills. The second component describes variance (16.4%) mostly influenced by planning and theoretical knowledge and management skills. A certain differentiation can be observed among students in both groups A and B, which means that the perception of the students in both groups regarding the effectiveness of business games in fostering specific managerial skills is not exactly the same, being a bit better in the case of students belonging to group B.

Specific managerial skills	Spain		Portugal		Italy		Germany		Ireland		K-W χ^2
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	
1. Management	3.65	0.83	3.76	0.82	3.8	0.34	3.82	0.68	4.08	0.68	5.99
2. Planning and theoretical knowledge	3.23	0.84	3.5	0.78	3.62	0.90	3.34	0.64	3.79	0.78	8.94+
3. Managerial roles and risk	3.62	0.74	3.70	0.79	3.75	0.98	3.72	0.51	3.94	0.77	4.23

H0: mean ranks not differ between groups - H1: mean ranks differ between groups***p<0.001; **p<0.01; *p<0.05; +p<0.1

Table 4. Descriptive statistics on specific managerial skills by country and analyses of variance

Specific managerial skills	K-W c^2 (Group A)	M-W U test (Group B)	Cultural contexts: group A and B						
			n (A)	mean (A)	sd (A)	n (B)	mean (B)	sd (B)	t-Student
1. Management	0.1196	1000	73	3.70	0.78	48	3.97	0.68	1.926*
2. Planning and theoretical knowledge	0.3205	1021.5	73	3.37	0.82	48	3.61	0.64	1.816+
3. Managerial roles and risk	0.3714	927	73	3.66	0.78	48	3.86	0.70	1.493

H0: mean ranks not differ between groups - H1: mean ranks differ between groups***p<0.001; **p<0.01; *p<0.05; +p<0.1

Table 5. Descriptive statistics on specific managerial skills by education system and analyses of variance
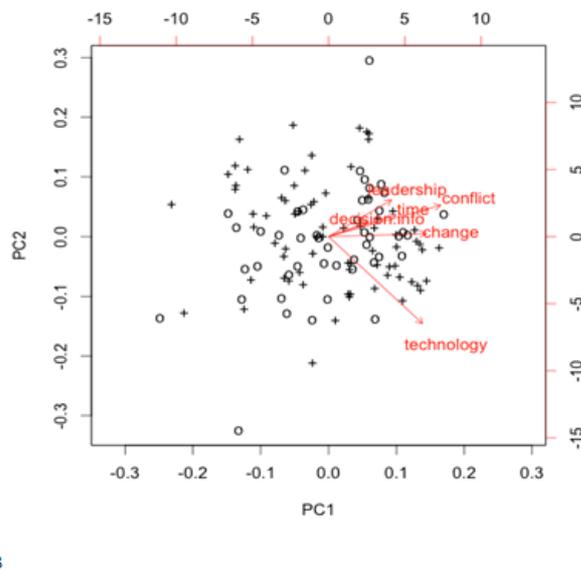

Plus symbol: group A
Circle symbol: group B

Figure 3. Principal component analysis of generic skills

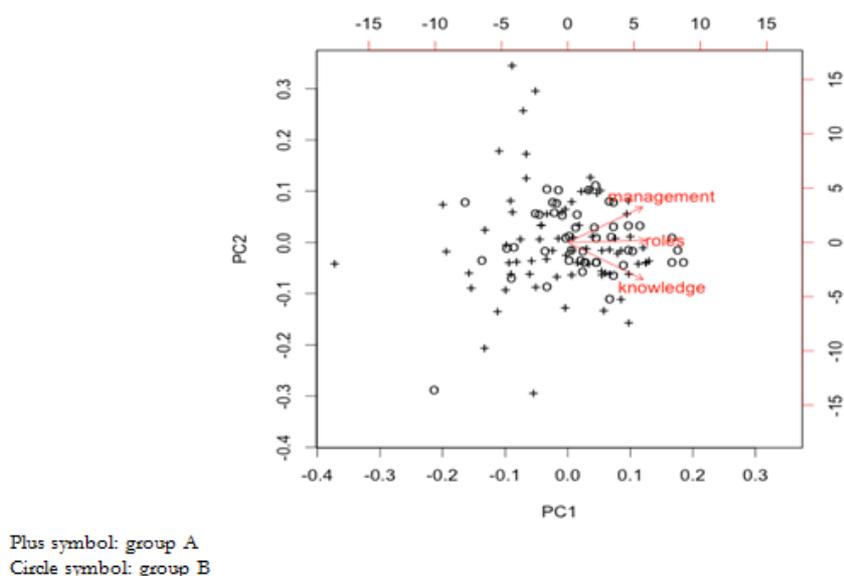Plus symbol: group A
Circle symbol: group B

Figure 4. Principal component analysis of specific managerial skills

5. Discussion and conclusions

This study highlights that business games are seen as appropriate e-learning tools for fostering both generic and specific managerial skills in management training courses by the students. Previous research has stated that, despite the large quantity of studies examining the effectiveness of business games, further empirical research is required. We have reached conclusions similar to those of previous research (Fu et al., 2009; Zantow et al., 2005; Urquidi &Tamarit, 2017), which point out the benefits of business games in enhancing student learning, highlighting in particular some generic skills like decision-making, , critical thinking, teamwork, problem solving, or the ability to analyse information. In our case, the most valued generic skills fostered by the game from the students' perspective were information processing and decision-making, and leadership. The least valued were the use of ICT and conflict management. These results have pointed out that students do not consider that business games add greatly to their previous experience in the use of ICT. It is also important to highlight that, when any kind of problem appeared within or among the students' teams, the students immediately asked for the instructor's help and intervention; as a result, although the game could expose students to situations of conflict, they did not consider it an especially appropriate tool for developing the skill of conflict management. Furthermore, this study wanted to go a step further, also considering the effectiveness of the game in boosting specific managerial skills, from the students' point of view. The results point out the positive opinion of learners about the usefulness of the game in fostering these kinds of skills, as does the little previous research carried out that has also analysed them (Chang et al., 2003). The most valued ones were those related to management, such as managing a company, improving its competitive position, developing strategies, providing advice and reaching the goals of a firm.

The results of this study indicate also that there are very few significant differences in the assessment of generic skills made by the students. Thus, the evaluation given by students from different countries and cultural contexts were quite positive and very similar. However, significant differences were found in the assessment of some specific managerial skills, particularly in the case of management, and planning and theoretical knowledge. This important result suggests that students from different backgrounds and culture assess the way in which business games foster the acquisition of specific managerial skills differently, but not the ability of the game to foster the most general ones. This very important issue certainly deserves further explanation. All of the students contributed favourable opinions on the usefulness of the game in promoting all kind of skills. However, students from Ireland and Germany, more accustomed to training techniques based on practice and experience, enthusiastically valued those aspects of the game that especially allowed business skills to be improved. However, the instructors did not perceive such enthusiasm, particularly among Portuguese and Spanish students.

Therefore, following some studies that points out the benefit of enabling students to work in cross-functional or cross-disciplinary teams (Geithner & Menzel, 2016), we can add the opportunity to work in cross-cultural project teams, being the business games an excellent opportunity to involve students in a complex and global context.

It would seem that Irish and German students are able to appreciate the benefits of the game largely because they are used to practical learning and can perceive more clearly all the potential of this educational tool in the business field. Their cultural context, characterised by the autonomous learning of the students, flat structures at work, high preference for uncertain environments, problem solving, and open-ended learning situations, provides a context for students where they can take advantage of the learning scenario offered by business games, developing a richer competency profile, based not only in generic skills more obvious and observable, but also in specific managerial skills, more detailed and subject-oriented. On the other hand, Portuguese and Spanish students, influenced by their cultural context, where students show preference for tasks with sure outcomes, free of uncertainty and risks, and where they are less independent, the learning opportunities provided by business games are not as valued as in the case of Irish and German students. Therefore, in this cultural context, the generic skills fostered by the game are quite evident, but the specific managerial skills not as much. In this case, a higher teachers' participation in the learning process developed by students should be required to take advantage of the educational benefits of business games. The cultural context of Italian students seems to place them halfway between the two.

This conclusion has practical implications and proves that the cultural context affects the students' perception about the effectiveness of this learning method. In the specific case of business games, our results indicate that students with exposure to experiential learning value better and can benefit more from this kind of tool and can appreciate its practical usefulness for management training to a greater extent. It suggests that, in some parts of Europe, more effort needs to be made in order to adapt to new education models and methodologies more oriented to experiential learning. The challenge is significant and it implies that instructors need to gain knowledge about this possible gap, to orientate and guide students in a correct way so they can take full advantage of all the possible benefits of these e-learning methodologies.

This research also has limitations, most of them related to the scarcity of data on students from each country, and the fact that the comparison was made using only one business game. We have used a proxy for students' cultural background through nationality (Hofstede, 2001), however even if the students in the same country shared their nationality we cannot assure the complete inexistence of any kind of cultural differences among them, which could be motivated by other determinants beyond their nationality, related to their life experiences or families. To apply more specific techniques to capture and measure the cultural background of students, and to study more in depth the differences among cultural backgrounds in the effectiveness of e-learning methods constitutes an interesting line of research for the future. To do so, the inclusion of more data and more countries could be helpful (Minkov & Hofstede, 2011), making also more consistent the groups considered in the international comparison. Finally, apart from cultural backgrounds, there are other perspectives, not included specifically in this study that deserves future research. Some of these perspectives that have been identified in previous research is the gender bias, as previous literature evidence, or ethical issues that should be included.

However, despite these limitations, some relevant contributions can be derived from this study. On the one hand, the research takes the assessment of business games a step further, considering a wide range of skills, both generic and specific managerial skills, not mixing these learning outcomes with other game characteristics frequently considered in previous research. On the other hand, a relevant contribution is the comparison of students' perceptions of business games in different cultural contexts. There are several studies that cite the excessive amount of attention given to this in literature in the Anglo-American context, claiming the need to broaden the focus to include other countries and cultural backgrounds, and the need for comparative international studies (Chang et al, 2003). The results of this work point to this direction and note that the efficiency of e-learning methodologies is not the same everywhere, and receives the influence of the place and/or culture where they are applied. The differences detected in the analyses carried out could help to adapt the games and the teaching processes to the specific context in which the game is being used and maximise its potential.

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Appendix 1

Personal information:

Gender: Female / Male

Do you have previous experience as manager?: Yes / No

Do you have previous experience with business games?: Yes / No

Current job; Name and surnames; Nationality; Age

University where you are studying a subject that uses the business game

Number of people in your team

University degree

Name of the team in which you have been a member using the business game

E-mail address

Generic skills fostered by the business game

Has the business game help you to acquire the following competences and skills?

Choose a level of agreement between 1 and 5. (1: Absolutely not; 5: Completely)

    Solving problems related to deadlines

    Solving technical problems related to software

    Influencing other people

Working with uncertainty

Using new communication platforms

Innovative capacity

Processing and analysing generic or global information of a whole company

Processing and analysing information referred to certain parts/units of a company

Creativity

Relating information and data

Delegating

Drawing conclusions from the information obtained or provided

Contributing to a good working atmosphere

Applying theoretical concepts of decision-making

Reaching agreements

Trusting

Solving conflicts within the group

Using new technologies

Decision making

Accepting the influence of other people

Time management

Solving conflicts between different groups

Entrepreneurship capacity

Specific skills fostered by the business game

Has the business game help you to acquire the following competences and skills?

Choose a level of agreement between 1 and 5 (1: Absolutely not; 5: Completely)

Providing advice

Implementing planning projects

Understanding the role and functions of different economic agents

Adopting different managerial/business roles

Managing risks

Identifying and dealing with relevant economic information sources

Understanding management concepts

Contributing/helping to reach the goals of a firm

Managing a company

Improving the competitive position of a company

Processing and analysing financial information and data

Integrating ethics in organisational decisions

Designing and developing strategies for a company

Understanding management theories

Team work

Please rate your level of agreement with the following statements

Choose a level between 1 and 5. (1: Absolutely not; 5: Completely)

Is there a great deal of disagreement about the global decisions and strategies of the company?

When major decisions are made affecting the whole company, the members of the team collectively exchange their points of view

We know that our time as managers is well organised

The process of decision making has been hard and costly

Is there a great deal of emotional friction inside the group?

Decisions were made by majority

We exert as managers a clear coordination among the functional and operational areas of the company

Decisions were made by consensus

I am proud of the company and its achievements

We know what our responsibilities as managers are

We know the authority that we have as managers of the company

The goals and objectives of the company are clear and planned

Communication among the members of the team can be described as open and fluid

Is there a great deal of personality clash within the group?

Coordination among the members of the team has been necessary to develop the management work and get the goals of the company

A negotiation process has been necessary to reach agreements

This is the best team in which I could be participated

All the members of the team have a voice/opinion in major decisions affecting the company

Is there a great deal of mutual mistrust between the members of the group?

Is there a great deal of disagreement about the operational decisions of the company?

The members of the team frequently share their experience and expertise for a better decision making

The functioning of the team has been good

Results

Please rate your level of agreement with the followingstatements

Choose a level between 1 and 5 (1: Absolutely not; 5: Completely)

Do you think that your individual participation in the game has been valuable?

Have you overcome your expectations?

Are you satisfied with this learning experience?

Do you think that you have reach your objectives and goals participating in this game?

Do you think that the business game really contributes to the learning process of students?

Have you covered your expectations?

Do you think that your participation as part of your team has been valuable?