BOARD GAMES AND SOCIAL INTERACTION – FASHION OR REAL PRIORITIES IN THE DIGITAL ERA?

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ABSTRACT
As teachers, our general goal is to improve the educational process, to increase knowledge and skills of our students and to increase their motivation to learn. One of the ways to obtain all these is through using board games as part of the experiential learning. This paper presents a series of results after using two board games – Pandemic and Power Grid Deluxe – with business students in The Bucharest University of Economic Studies, Romania. The main methods used are observation of the participants when playing the games, two questionnaires applied after these activities and the development of interview guide, which served as a basis for four group interviews. Our main idea as a conclusion of both our activities and of this paper is that board games and social interaction should be increasingly used in business higher education.

KEYWORDS: *business higher education, students, games, motivation, learning process*

1. INTRODUCTION

The digital era comes with a series of changes in the way the educational process takes place. Each of us can find information a lot easily compared to the situation in the past. The main issue has moved from not having enough information to having too much information that needs to be processed very fast. Thus it becomes vital to acquire a series of competences aimed at speeding up the decision-making. Also, it is increasingly important to benefit from others' competences and to work in teams. One of the teaching methods that might lead to these results refers to using games.
Using games in education is not something new. Games are actually widely used for attaining a series of objectives such as making better decisions, formulating strategies and adapting them when it is the case, collaborating for having better results, but also competing for increasing performances.
Our main objective in this paper is to increase awareness regarding the role of games in education and to highlight the advantages of a particular type of games – board games – over computer simulations.

2. USING GAMES FOR EDUCATIONAL PURPOSES – A BRIEF LITERATURE REVIEW

2.1 Ways to Improve Students' Motivation to Learn

Motivation in education has been analyzed in many studies. It refers to all the factors that are stimulating and energizing the learning process of individuals (Hrbackova & Suchankova, 2016; Radu, 2014; Radu, 2016; Ryan & Deci, 2000; Tohidi and Jabbari, 2012). Even if, in many cases, we see the educational process as having a main driver from the learner (intrinsic motivation), emotions

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influence learning and thus the role of a teacher as a facilitator is very important (Radu, 2014; Radu, 2017).

As teachers, we would like students to be more motivated to learn. Understanding the various kinds of extrinsic motivation is vital, since it is not possible to rely only on the intrinsic one and, moreover, intrinsic motivation can and should be stimulated also by some external variables that rely upon the teacher's methods and attitude.

It is obvious that students and teachers do not always have the same opinion regarding what good teaching is (Nasser-Abu Alhija, 2016; Goldstein and Benassi, 2006), In addition, the interaction between the teaching style and the learning styles is very important and it is interesting to analyze students' profiles (Radu, Jiroveanu and Costache, 2016; Radu, Deaconu and Dobrea, 2017). It has been observed that students do have some personality preferences for teachers that are strongly linked to their own personality (Ajzen, 1974, Kim and MacCann, 2016). In the last two decades, there has been a strong increase of preferences towards experiential learning and gamification, both from the teachers' and from the students' perspectives (Radu, 2012; Seaborn and Fels, 2014).

As an interesting issue, Guryan, Kim and Park (2016) analyzed if incentives in education could be more or less effective depending on students' motivation. Their findings indicated that rewards work better for intrinsically motivated students, while increasing educational investments by less-motivated students would rather need other motivational strategies.

Nowadays, using technology in class is crucial – computer-based games, Facebook, Instagram, Snapchat, WhatsApp, Twitter, and other online platforms (Au-Yong-Oliveira, Gonçalves, Martins and Branco, 2018; Deaconu, Dedu, Igreț and Radu, 2018). However, it is important to notice that social interaction is increasingly important, as an integrative part of the learning process (Woolfolk, 2001). As our educational approach is in line with this idea, we were particularly interested in including more social interaction in our teaching activities, in order to promote learning and, perhaps, to increase the concentration time of our students, while decreasing their dependence on technology (and especially on phones).

2.2 Advantages of Using Board Games in the Educational Process

We explored the advantages of gamification and especially of the use of board games for educational purposes. Beyond being a source of positive states and enjoyment (Sailer, Hense, Mayr, and Mandl, 2017), games have the potential of improving the learning process through engagement, motivation and performance (Subhash and Cudney, 2018).

Board games facilitate communication and the understanding of various types of behavior, teamwork and collaboration. It has been noticed that students generally prefer cooperative games and strategies in teaching and learning context, as when working in groups they feel that they can rely on others for help and thus become more confident in their own abilities to solve problems and they enjoy learning (Farzaneh and Nejadansari, 2014).

Board games accelerate learning through systemic thinking, decision-making and problem-solving. The focus moves from the instructor to the learner and thus students have the opportunity to address complex problems and involve actively in the process of making decisions (Coffey and Anderson, 2006) The consequences of the decisions and the process of adapting to dynamic scenarios are experienced in a safe learning environment, while simulating a risky one (Deck and Silva, 1990; Farashahi and Tajeddin, 2018; Ungaretti, Thompson, Miller and Peterson, 2015)

The level of participants' involvement increases as a result of being connected in attractive game scenarios. There is a lower gap between theory and practice by representing real situations that need to be solved. Thus board games (as games in general) help people identify gaps in knowledge and can strengthen the link between theory and practice (Kuhn, 1995).

Of course, besides de advantages, the potential problems and risks associated with using board games as part of the educational process need also to be aknowledged. Henderson (2005) and Kuhn (1995) argue that games can potentially lead to some negative emotions such as anxiety and

embarrassment or can result in somehow threatening behaviours for the others, such as increased competition. However, we should not forget that competition stimulates development. Even if we are interested in enhancing cooperation and even collaboration (the desire to cooperate), we believe competition is also good. A higher difficulty when using board games refer to cost and time implications in developing and setting up games (Gibson and Douglas, 2013). For instance, for playing the two board games as described in this paper we needed a special room for each day in which we were playing, as it would have not been feasible to finish everything on time in the normal schedule of our students and there were also cost implications. Also, for us as teachers we are aware it is difficult to establish individual learning in a team game, when some students might find easier to let their colleagues decide instead of them.

3. CASE STUDY – USING BOARD GAMES FOR TEACHING MANAGEMENT IN THE BUCHAREST UNIVERSITY OF ECONOMIC STUDIES

3.1 Methods

As part of our teaching activity, we chose to play two board games (Pandemic and Power Grid Deluxe) with our students studying Mangement in The Bucharest University of Economic Studies, Romania, in March 2018. Our intent was to better introduce a series of managerial concepts, such as teamwork and colaboration, negotiation, strategy formulation, competitive intelligence and flexibility. We had almost 100 participants per game – each time around 20 participants (4 or 5 games in parallel).

Then we applied two questionnaires (one per each game) in order to understand students' perceived outcomes. After interpreting the results of the questionnaire, we also developed an interview guide and took four group interviews. The analysis of our transcripts of the group interviews is still work in progress.

We were able to analyze students' reactions when and after playing the games (March 2018), students' responses to questionnaires (the end of March 2018), students' responses in the group interviews (interviews taken in May 2018; analysis still work in progress), students' results at the final exam (June 2018 – still work in progress).

In Pandemic, the players are members of a disease control team, travelling across the globe, treating infections while finding resources to cure or to eradicate them. Players are working together to find solutions and to prevent diseases outbreak, before time passes and the 4 deadly are outspreaded all over the world. All players win or lose together. The players win as soon as they discover the cures for all the four diseases. The games ends with the players' victory, no matter how many cubes remain on the globe. Players will lose if a global panic occurs, a disease is spreading too much, or if runs out of time. Each player owns a specific role with different range of abilities and possibilities to act in certain situations where might perform useful actions for the team. Over the course of the game, players move between infected locations, treat diseases, share knowledge when various conditions are met and set up a network of research stations which might support them to move faster and to find the cures within. Pandemic game encourages players to consult and to share ideas and strategies. However, the player whose turn it is decided what actions to take, and this is what gives birth to a series of communication problems or team development opportunities. In order to win the game, players need to carefully plan in advance several activities, to closely coordinate their abilities among themselves, supporting the team to find the cures. Foreseeing the evolution and spread up of different infections represents a useful ability for success.

In Power Grid Deluxe, each player represents a power company, working to supply electricity to the cities connected within his own network. During the five phases of the game, the players bid to acquire power plants, buy the necessary resources to produce electricity, such as: coal, oil, gas and uranium, and build a network of cities which they try to supply with electricity. A player may connect to any number of new cities during his turn, as long as he/she pays all the buildings and the

connection costs. Based on the number of cities powered, the players earn income. The game runs through three steps, each of the steps corresponds to a certain number of cities connected and allows placing network tokens within the same cities already connected by other players, according on game specific progress. The process of matching purchasing decisions with the development ones is essential during the whole game. The players have to closely monitor the competitors to understand their business objectives and strategies, based on the power plants they acquire, cities linked, dependence of resources and its price evolution. In the same time players should foresee the possible scenarios of game progress, based on the game level, geographic localization and availability of resources. Power Grid is economic strategy game about planning, negotiation and resources management. The game ends when at least one player has connected an indicated minimum number of cities according to the number of players. The player who supplies electricity to the most cities in his/her network, using the resources stored up and power plants he/she has, wins the game! In case of a tie, the player with the highest amount of money wins. Despite that a player triggers ending the game, other player might win if he/she cannot supply energy to all his cities connected due to the limited capacity of this power plants or lack of sufficient resources to run the power plants he owns. The process of purchasing power plants and resources generates a constant struggle to players, in order to upgrade their equipment for maximum efficiency while saving wealth to expand the cities network via the cheapest and best located routes.

After the management seminars in which students were actually playing the two board games described above, we applied two questionnaires by using the Google Drive platform. The participation in the questionnaire was voluntary, but encouraged through extra-points that they could receive by demonstrating what they learnt. The two quesionnaires are presented in table 1.

Table 1. Questionnaires after playing the two games

	Questionnaire	Number of questions	Number of respondents	Link to the questionnaire
1	Extra Homework 1 – My Insights into Pandemic Game	15 questions (most of them open questions, one that comprises 30 items to be rated on a scale 1-5)	77	https://goo.gl/forms/Hp2K0Ao566Vm3DKw2
2	Extra Homework 2 – My Insights into Power Grid Deluxe Game	15 questions (most of them open questions, one that comprises 30 items to be rated on a scale 1-5)	70	https://goo.gl/forms/fqNVETwL80CiCj1X2

Source: authors

After processing the results of the questionnaires, we were able to develop the group interview guide and to conduct 4 group interviews with 6 participants per interview. This activity was 100% voluntary, as it was not part of any homework.

3.2 Main Findings and Discussion

As expected, students brought many valuable insights. What we would like to highlight in this paper is their need for more social interaction, as presented in figures 1 and 2. The most interesting part of this result is not that for the game Pandemic, more than three thirds of the respondents said that human interaction in the game is the key, as this was totally expected, since Pandemic is a team game in which everybody wins or loses together. It is more interesting that 44.30% of the respondents in the second questionnaire also considered human interaction in the game as being the most important. Their number was higher compared to the one of the participants focused on reading rules (and the rules are quite complex) and compared to the one of the learners focused on the visual of the board (which is very important for the strategic decisions). Thus, one of the main ideas of our paper is that board games do have some advantages compared to computer simulations everytime we want to teach both strategy and soft skills. Here, of course, we refer to normal board games and especially normal computer simulations (super-computers and robots are excluded from start, due to cost issues).

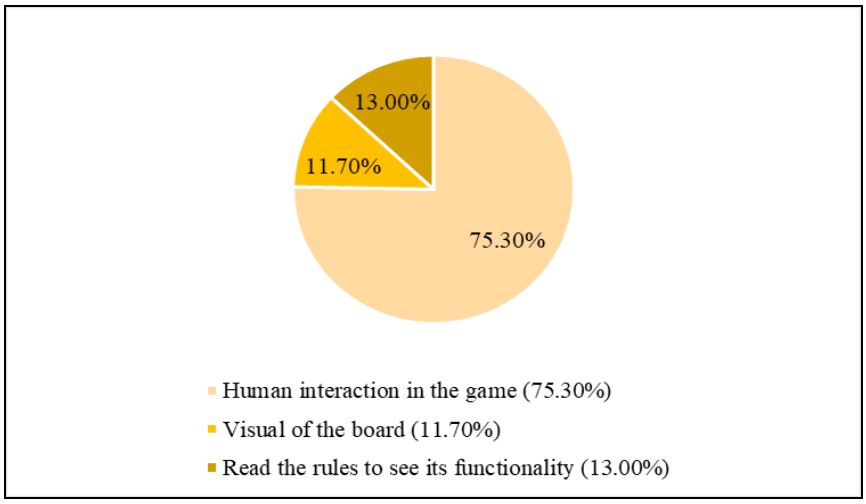

Figure 1. Factors driving attention to the board game Pandemic
Source: processed by authors

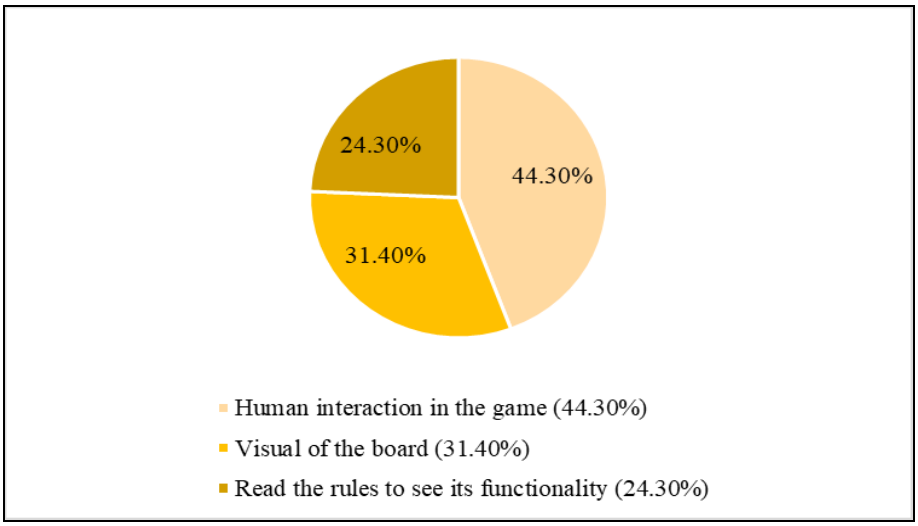

Figure 2. Factors driving attention to the board game Power Grid Deluxe
Source: processed by authors

We consider that human interaction in increasingly important in the context of the digital era, as it brings additional perspectives and contributes to personal development.
Since most of the questions in the two questionnaire were open questions, we had to process text data. Thus, text data was processed by using QDA Data Miner Lite software, by assigning codes. The main result of our text processing activity was grouping the ideas into categories and, on this basis, developing an interview guide in order to access deeper meanings by building on students' reflections related especially to their motivation to learn. Our interview guide is presented in table 2 and consists of 6 main quesions and a series of prompts for each question.

Table 2. The interview guide

	Question	Prompts
1	Could you please tell us the most important five ideas that you have learned / skills that you have acquired through these games? Refer to knowledge and/or skills.	• Main ideas learned • Learning by doing • Learning as introspection • Social interaction and value of observational learning = learning that occurs through observing the behavior of others (learning by watching the others) • Focus on knowledge or skills?
2	Compare the two games. Which one did you like the most? From which one have you learned more? Write some ideas for learning the rules at a faster pace.	• Teamwork versus individual work • Cooperation versus competition • Like versus learn • Faster learning – only demo? Demo with students involved by answering questions regarding potential moves? Other ideas?
3	One of the risks of playing a cooperative game like Pandemic is the phenomenon of quarterbacking, when the most experienced player won't let the others decide on their own. What do you think about this issue?	• What makes you or the others persuasive? • Distrust • The experience of learning • Conflict of ideas versus having a common goal • Progress in team development • Escaping from the "dictatorship"
4	How could you assess your level of attention in these games and the retention after? What about your colleagues? Losing makes people want to do it again, to prove what they are capable of, or they are rather demotivated? What about winning? What about the frustration coming from not being able to finish a game? Refer both to your situation and to the reactions of your colleagues. Does playing for educational purposes make a change in these feelings compared to playing just for fun?	• Level of attention • Level of retention • Emotions – how they influence learning • Motivation / demotivation • Playing for educational purposes – differences

5	Were the games helpful for understanding others' personalities, knowledge, abilities and attitudes? Could you give some examples? How can you use this information in future? In order to have a better learning experience, who should be your teammates / competitors in the games (students you prefer to work with / students you do not know well / 2 rounds to have both of these and monitoring progress and collecting feedback / equally experienced and motivated students)?	• Balance between cooperation and competition in Power Grid (cooperation for learning) • Leadership • Models • Tendency to stay in the comfort zone – students they prefer to work with • Understanding the value of getting to know other people • Understanding the value of learning to work with others you they do no like so much • Need for a more balanced approach, in order to use their time properly
6	Which do you think are the most important five advantages of using management games? Do you think that board games have more advantages or disadvantages compared to computer-based games? How do plan to use the acquired knowledge and skills in your future professional and personal life? What are the strategies that you have learned / you understood that you should develop?	• Advantages of management games – focus • Advantages of management games over traditional education • Advantages of board games over computer-based games • Disadvantages of board games compared to computer-based games • Using the acquired knowledge and skills • Strategies learned • Strategies that they think they should develop

Source: authors' elaboration after applying the questionnaire

After developing the interview guide, we used it in May 2018 by conducting 4 group interviews of 6 participants. The interviews were recorded and analyzing the transcripts is still work in progress at the moment of writing this paper. Again, data will be processed by using the free software QDA Mine Lite.

It is important to mention that it was somehow hard to choose the participants for the interview. The activity was voluntary, but we still had to choose, as more people than expected wanted to participate and we had to refuse some of them. Generally, we preferred to choose the ones that seemed to have more things to say in the questionnaire. We also tried to have as different views as possible. While we want to highlight the advantages of board games over computer games, we have to say that a student did not have the same opinion. Unfortunately, he did not volunteer for the interview. Otherwise, since this is mainly qualitative research, we consider his inshights should have been analyzed at a deeper level and could have led to a better analysis. From the short answers in the questionnaire we may conclude that he did not understand the activities very well. Still, it would have been important to analyze the situation at a deeper level.

4. CONCLUSIONS, LIMITATIONS AND FURTHER STEPS

We consider our experiment was a success. By playing board games for educational purposes, students could obtain more in terms of discovering themselves, understanding others and also took a step further towards being more self-motivated to learn. As expected, students generally expressed a positive attitude towards more socializing and showed a higher level of attention (i.e. the "need" for

using phones all the time decreased and some students said that they could focus for one hour without looking at their phones).

According to both our observation and students' insights presented in their responses, using board games was a very good method to train a series of key competences. Thus, for the board game Pandemic, students learn more about:

- collaboration, teamwork and team engagement;
- efficient management of crisis situations;
- taking advantage from core competences of each function;
- connecting individual tasks to team plans and progress level;
- representing processes, roles and interactions within the team;
- giving feedback in real time and negotiating under stressful conditions;
- getting fast consensus and achieving concrete results within a tight time frame.

In the case of the strategic management game Power Grid Deluxe, the key competences trained referred to:

- understanding the business perspective, the system and the main market mechanisms;
- strategy formulation and adaptation to fast changing conditions;
- decision-making and scenarios generation;
- creation and preservation of the competitive advantages;
- understanding the cash-flow and maximising the business profitability;
- negotiating with competitors in a challenging environment;
- monitoring key performance indicators (KPIs) and performing within the time frame.

While the results express very well the reality of the context in which our research took place (Romania, business higher education, particular groups of age), they cannot be generalized – main ideas still apply, but it is important to look at particularities – age and field of study, for instance, are for sure very important. The games attain their purpose better at master level and at older ages, while younger students do not always pay enough attention to the debriefing process. However, we consider this is a limitation just in terms of preparation time for the teacher, as is is important to find the most suitable game for each group, depending on their particularities.

We will continue to use board games in future, by also always paying attention to potential improvements.

This paper describes the current stage of our research. In the next months we will also process the results of our interviews and thus we will be able to provide a better image of the whole process.

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