# Using game-based learning to teach economics during times of disruption

March 17 2021, by Philippe Masset, Jean-Philippe Weisskopf and Mélanie Bonvin

Research shows that game-based learning techniques can improve students' understanding of class material. Credit: Tima Miroshnichenko/Pexels, FAL

The educational disruption caused by the COVID-19 outbreak represents a significant challenge for teachers all over the world. The situation

requires adapting the organization of lectures and the learning style to a fully online distance-learning context. Distance-learning is very different from face-to-face learning, notably in terms of the interaction between teacher and students and among students, and complicates student engagement and participation. The paradigm of "student centered" education seems more challenging to maintain in this context.

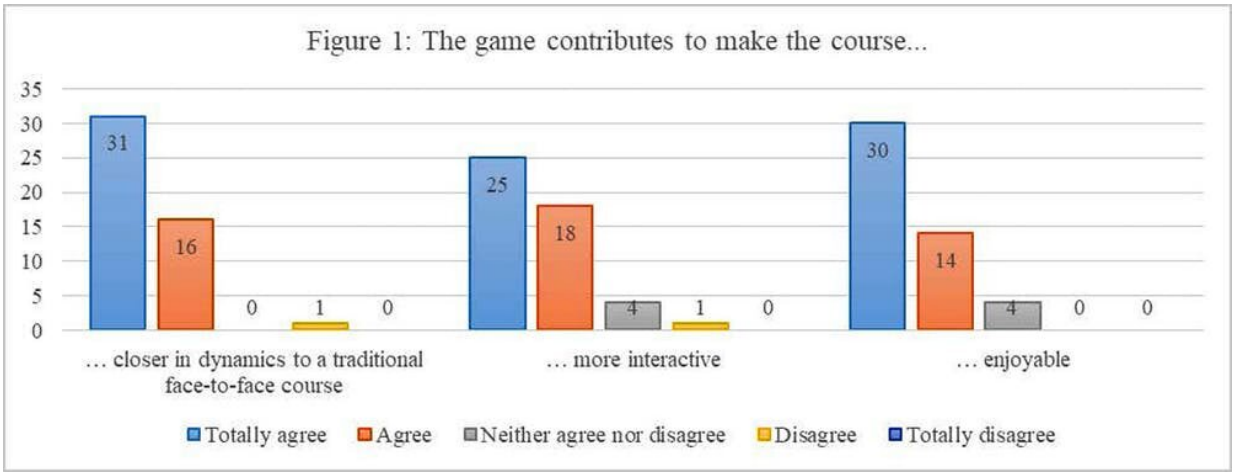
Even in a traditional classroom, however, it is not always easy to get students' attention. This is especially true for courses in technical fields. Our experience as teachers suggests that game-based learning (GBL) techniques can be useful in reducing student anxiety toward technical and/or abstract concepts and in increasing class-involvement. Both are consistent with existing evidence (Subhash & Cudney, 2018). However, there is little to no indication, thus far, whether GBL methods remain effective in a distance-learning setting, which has disrupted most educational institutions over the past year.

## Developing a group simulation game for an online course

As finance professors in an undergraduate program in hospitality management, we are facing the above situation. To overcome this issue, we have used mostly group-based games in our finance courses. Organizing games in groups comes with several advantages: it makes the game easier to manage and, more importantly, increases the number of constructive exchanges among students. It also helps weaker students to develop competencies through the interaction with their classmates.

When designing a game, it is essential to ensure that it is reasonably realistic, fun, competitive, and aligned with the learning outcomes. These "rules" ensure that the game is engaging and contributes to the effective acquisition of the targeted competencies and their transfer to

the workplace.




Impact of game-based learning on the gap in class dynamics and interaction between distance-learning and regular face-to-face learning. Author provided

However, adjustments are required to make games work in a distance-learning environment. In particular, interactions with 60-plus students via an online chat are more complex than in a classroom setting. Likewise, it is impossible to let students interact with each other through the learning platform. Thus, the most critical step is to deploy a strategy to make students interact with each other in a dynamic yet manageable way.

The teacher must take a leading role, providing all relevant data and ensuring that all students have access to the same information. The simulation needs to be organized very clearly with dedicated processes to ensure effective communication among students and between students and the teacher. It is important to give the students enough time to reflect on their decisions and discuss them with the other group

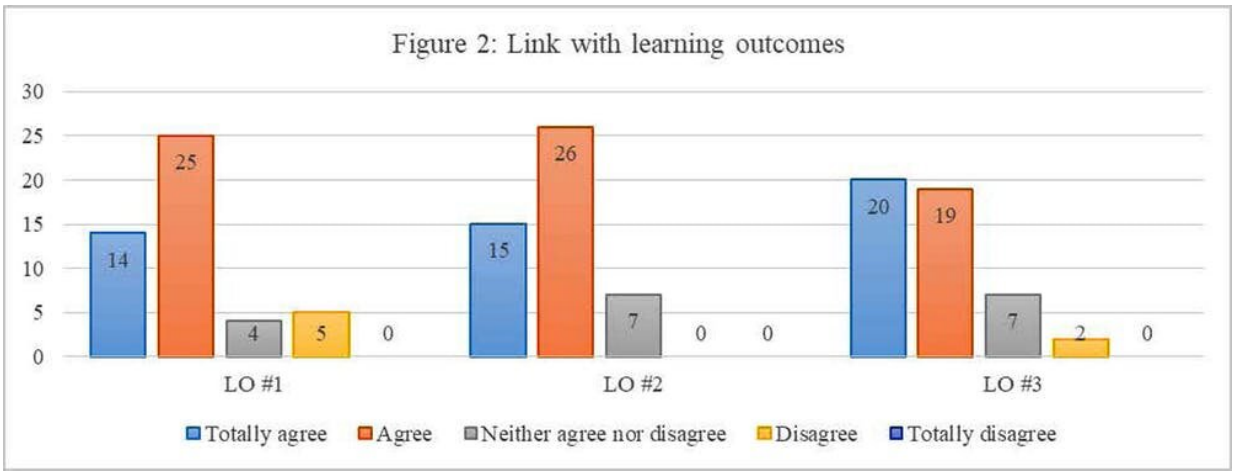
members. The use of a learning management system such as Moodle (e.g., to allow students to communicate their decisions/actions in the game to the teacher) may smooth the overall process.

## Does GBL help to reduce the gap with face-to-face learning?

In the following, we use the example of a "bond simulation game" implemented in two online corporate finance classes. We ran a survey asking students about their learning experience concerning the game, especially the game's ability to reduce the gap between distance and face-to-face learning.

In the first class, only 37.5% of students playing the game answered the survey. This may indicate that some students were inactive but may also be due to the context: in a distance-learning setting, it is difficult to ensure that all students participate in a survey. In the second class, more effort motivating the survey and explaining that feedback would improve the course was invested. 64% of students playing answered. This higher rate of response outlines that teachers need to clearly motivate all activities to ensure that students remain involved in a distance-learning setting.

The results reported in Figure 1 indicate that GBL reduces the gap in class dynamics and interaction between distance-learning and regular face-to-face learning. Indeed, out of 48 respondents, 47 students consider that the game contributes to making the course closer in dynamics to a traditional face-to-face course. Moreover, most students acknowledge that the class was more interactive (43 out of 48) and enjoyable (44) thanks to the game.




What students feel about how the game used in class helped them understand two learning outcomes. Author provided

## Does GBL help students acquire targeted competencies?

Until the final evaluation, it will be difficult to propose a definitive and unbiased answer to this question. However, feedback from students is encouraging. The game's objective was to assess if students had acquired the first two learning outcomes (LO #1: bond prices and yields, and #2: economic conditions and bond yields) and to introduce the third and last learning outcome (LO #3: bond risks) of the corresponding chapter.

Figure 2 shows that most students (39, respectively 41) recognize that the game helps them understand LO #1 and LO #2. Finally, 39 students answer that "the game gives them some intuition" on LO #3's concepts to come. It appears that GBL helps students assimilate learning outcomes and is corroborated by highly relevant questions and comments students made after the game.

More generally, 81% of surveyed students stated that "the game

reinforces their interest for the course." Only one student out of 48 disagrees with this statement. 81% of the students further mention that "the game motivates them to engage more in the course." No student disagrees with this statement. Finally, when using a game in class, especially in a distance-learning context, it is essential to ensure that the instructions and the progression in the game are clear to all students. 83% of the students concur that "the instruction and the progression in the game were clear." This suggests that there was no important bias in the game and that the results from the survey can be considered relevant.

We remain cautious and cannot ensure that the game will effectively increase the number of students who acquire the learning outcomes. However, it seems evident that the game has had, at the very least, a positive impact on class dynamics and interaction, as well as on student engagement and motivation for the course.



Provided by The Conversation