Gamifying Flipped Learning for Promoting Students’ Online Participation

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BACKGROUND
Flipped Learning (FL) is a technology-enhanced instructional strategy that has received a lot of attention from educators in recent years (Chen et al., 2014; Hau, 2015). This strategy moves the learning and teaching activities that conventionally take place “outside the classroom” to “inside the classroom,” and vice-versa (Bergmann & Sams, 2014; Jong, 2017). In FL, students conduct online, lower-order learning tasks at home, so that the in-class time can be used for engaging students in face-to-face, higher-order learning tasks with quality teacher-student and student-student interactions (Hwang, 2016). We have developed a pedagogic framework, namely Flipped Issue-Based Enquiry Ride (FIBER) (Jong et al., 2019), to integrate FL into social enquiry learning. The present proposal is to further gamify the online components of FIBER so as to promote students’ outside-the-classroom participation.

GAMIFICATION OF FIBER
The design of FIBER is theoretically grounded upon Stripling’s (2003, 2008) six-phase social enquiry learning model. Figure 1 illustrates the implementation of FIBER for learning and teaching a social enquiry module (based on a societal issue). Connection (Phase 1), Comprehension (Phase 3), and Expression (Phase 5), which involve lower-order learning (i.e., remembering and understanding in Bloom’s Taxonomy [Anderson et al., 2001]), take place outside the classroom. Exploration (Phase 2), Construction (Phase 4), and Reflection (Phase 6), which involve higher-order learning (i.e., applying, analysing, evaluating and creating in Bloom’s Taxonomy), take place inside the classroom. The full delineation of FIBER can be found in our previous paper (Jong et al., 2019).

The term, “Gamification,” refers to the use of game mechanics and experience design to digitally engage people in achieving intended goals in non-game contexts (Burke,
Educational gamification is an approach to integrating the idea of gamification into the educational process to support students in attaining intended educative goals engagingly (Dominguez et al., 2014; Jong et al., 2018; Kapp, 2012). To gamify the online components (i.e., Phases 1, 3, and 5) of FIBER, we have adopted Lee et al.’s (2011) three-dimensional framework for gamifying learning environments. Regarding the cognitive dimension, the gamified environment should contain a system of rules connecting to a series of learning tasks while each task (and the corresponding goal) can be further divided into a number of sub-tasks (and the corresponding sub-goals). Regarding the emotional dimension, the gamified environment should provide students with feelings of “success” and “failure” in the learning process. In the social dimension, the environment should possess learning tasks that facilitate social interactions (in the form of collaboration and/or competition) among students. Figure 1 (the left-hand side) describes how Lee et al.’s framework is implemented to gamify the outside-the-classroom phases of FIBER.

**Out-of-class:** Every student selects an avatar in the Learning Management System (LMS) to denote himself/herself. In the LMS, students conduct individual learning by watching the direct-instructional videos for equipping themselves with background information of the societal issue. After watching a video, they will be awarded a “star” shown on their own progress bar (see the upper part of Figure 2), and can use the awarded star to unlock the next video. The leader board (see the lower part of Figure 2) will dynamically indicate how many stars each student has obtained and how much time he/she has spent on obtaining the stars.

**Out-of-class:** There are different sets of extra-video-based materials posted on the LMS. Each set contains different content covering the characteristics of a particular core stakeholder. The materials are presented in a direct-instruction manner. Students will conduct individual learning by accessing one material set corresponding to the stakeholder role assigned to their group in Phase 2. Again, after watching each video, they will be awarded a “star,” and can use the awarded star to unlock the next video. The leader board will be dynamically updated in accordance with their learning progress.

**Out-of-class:** Each group will create a short video with the borrowed tablet to present their argument developed in Phase 4 and then share it on the LMS. Once a group has uploaded their video, each member of the group will be awarded a “star.” Also, each student is required to watch and comment on the videos posted by other groups. This inter-group peer-sharing exercise aims to enable each group to understand more about other stakeholders’ views on the issue. After watching and commenting on a video, students will be awarded a “star.” Also, the leader board will be dynamically updated in accordance with their learning progress.

**In-class:** Students are divided into groups. Each group is provided with a tablet to access additional materials related to the issue posted on the LMS. The content of these materials is controversial. Each group will analyze and evaluate the materials, and try to identify the stakeholders of the issue. The teacher will offer them instant guidance if needed. Before the lesson ends, each group will talk about the stakeholders they have identified. The teacher will debrief the class on why some identified are regarded as the core stakeholders and why some are not. Then, each group is assigned a core stakeholder role.

**In-class:** Each group is asked to construct an argument on the issue from the assigned stakeholder’s view. They have to work together to conduct a more in-depth analysis of the issue and apply the knowledge they have gained so far to frame their argument. Also, they should look for evidence from the Internet to examine the argument’s rationality and authenticity with the provided tablet. The teacher will offer them instant guidance if needed.

**In-class:** Each group will reflect on the limitations of their argument presented earlier in Phase 5 and reshape it from a more holistic perspective with a balance of other stakeholders’ views. The teacher will offer them advice if needed. By the end of the lesson, each group will share their final argument in the class and receive feedback from other groups.

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**Figure 1: Gamification of FIBER.**
COMING WORK
An experimental study involving different academic achieving students will be carried out to evaluate the pedagogic effectiveness of gamified FIBER (namely, g-FIBER) in comparison with FIBER (the original), in terms of knowledge acquisition.

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BIBLIOGRAPHY


