How do you better engage the current generation of postsecondary students, who have grown up with information communication technology and use it on a daily basis, in postsecondary courses, especially required ones? Could the incorporation of game-based learning and mobile technologies lead to enhanced student interest in course material? A new article in *Natural Sciences Education* evaluated these issues.

A group of researchers from the University of British Columbia Vancouver developed, implemented, and evaluated a mobile game-based learning quest. This treasure hunt, based on the Questogo platform (website and mobile app software design by 14Oranges, Vancouver), was piloted in a mandatory undergraduate forest ecology course.

The disturbance ecology (DE) quest was designed as a self-study activity that supports field-based laboratory sections of the course. The quest included instructional, location-based, and question- and answer-type tasks that tested students’ knowledge of forest and disturbance ecology in an outdoor setting (Fig. 1 and 2). The DE quest focused on the following topics: ecosystem succession, ecological disturbances, and disturbance regimes, which were chosen because of the rich disturbance history and thus observability in the provincial park adjacent to campus. The learning objectives of the DE quest were to review previously learned course contents, enhance students’ interest in forest ecology, and view the forest ecosystem in an integrative and interactive manner. The DE quest was implemented during the two weeks before a final laboratory exam. No mark was awarded for the completion of the DE quest; however, students who completed the quest were given the opportunity to have their lowest laboratory report mark exempted from course mark calculation.

After completing the DE quest, students provided feedback via an online survey. Students’ answers showed that the DE quest was designed at an appropriate level to help them carry out a self-study review of material covered in the laboratory sections. The majority of students found the DE quest to be a useful self-study tool, with 81% of respondents indicating that they were able to successfully engage with the mobile game-based leaning technology. Sixty-six percent of the students would like to also see quests incorporated into other courses, and 28% would like to have additional quests in the forest ecology course. A major benefit of the DE quest is that it allows students to go back to the app and review the questions asked and topics covered as many times as they wish. In a typical field-based laboratory section of the forest ecology course, a group of up to 60 students visited various sites with one instructor, limiting direct hands-on participation time by each student. The DE quest and the app allowed students to learn concepts that they may have missed during the outdoor laboratories because they were said out of earshot. This study provides a framework for incorporating mobile game-based learning into outdoor learning activities that offer students an engaging self-study educational experience.


![Fig. 1. Captures of phone screens showing top row: (a) start screen, (b) initial instructional task screen, and (c) initial location task of the disturbance ecology (DE) quest; and bottom row: (a) question and answer task, (b) correct answer, and (c) incorrect answer for a question task of the disturbance ecology (DE) quest.](image-url)