Enhancing Learning via the Internet:  
The Internet Agricultural Bank Simulation Game

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The Oklahoma Agricultural Bank Simulation Game (Ag Bank Sim) is a software based, experiential learning tool through which participants historically have learned key financial, economic, and banking lessons (Petternen, Map, and Love 1998). The game offers a "real world" experience in which management decisions affect institutions interacting in a geographic market, enhancing understanding of the complex, competitive environment within which commercial banks operate.

A new Internet version of the game has been developed, allowing participants to play Ag Bank Sim in a virtual environment. While having an experiential game on the Internet is appealing, questions arise regarding the effectiveness of this version in improving participants understanding of key concepts. The Internet version has been pilot tested with undergraduate students at Louisiana State University (LSU) and Oklahoma State University (OSU) in the spring 2010 semester.

Objectives

• Introduce new audiences to Ag Bank Sim and its features
• Assess whether the Internet version of the game enhances learning of key bank management concepts

Playing Ag Bank Sim

Ag Bank Sim is introduced to participants using a combination of lecture and website demonstration. The lecture emphasizes decisions that can be made, the environment in which they are made and the potential outcomes of different strategies. Participants are assigned to a bank management team in a county containing three competing banks that initially are equal in all aspects. Teams make multiple decisions within a time period. Figure 1 is a screenshot of the decision form.

Computer Based Simulation

The literature suggests that computer simulation learning is active learning and is more effective than passive learning methods (see, for example, Arellano and Bone 2001; Boellje and Eidman 1978; Kagan, Mayo, and Stout 1995; Villalobos 2007; Arias-Aranda 2007). Research shows that simulation:

• is effective in reinforcing classroom concepts;
• entices theory with practice and lets students be responsible for their decisions;
• allows students to learn from and analyze the results of their own strategies and decisions;
• stimulates students interest in how the system is working which in turn creates learning, as opposed to memorizing facts to pass a test;
• can reinforce concepts through circular learning: test new scenarios via a concrete experience, reflect upon what happened in the game, then repeat the process;
• forces students to think nonlinear, which how the mind operates, as opposed to linear textbook (lecture) learning.

Results and Discussion

An undergraduate capstone strategy class at LSU and an undergraduate agricultural finance class at OSU played the game independently this spring [the potential exists for intercollegiate competition]. Instructors noted that the competitive nature of the game enhanced interest in playing and learning. At LSU, the instructors played the game with students, causing great curiosity among students as to how well they were doing relative to the instructors. Instructors who have used both the traditional game and the Internet Ag Bank Sim reported a reduction in time spent managing the game of up to 30%. Also, students learn results of their decisions soon after the decision-making deadline via e-mail so are not forced to wait until the next class period for results.

Pre- and post-tests were given to students to measure their understanding of banking principles: agricultural bank's primary source of loanable funds, factors that affect loan supply and demand, factors that affect the after tax returns on investments, etc. Figure 3 contains the 10 questions used in the test.

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www.agbanksim.org

Students make the decisions listed in Figure 1 four times while playing Ag Bank Sim. Making these decisions reinforces fundamental concepts taught in class, for example, how a savings account interest rate decision impacts deposits in a competitive financial market. Participants receive reports on bank performance and changes in market share each period to aid them in making decisions for the subsequent period. At the conclusion of the game, teams are recognized for their performance in a variety of categories (Figure 2).

Figure 2. Online Performance Report Form for Ag Bank Sim

At both institutions, a guest lecturer presented the information. However, the incentives for participation differed slightly between the two courses. In the LSU Strategies class, participation in the game was 5% of the course grade; in the OSU Ag Finance class, participation in the game counted as one of six homework grades, with homework grades counting 25% of the total grade.

Conclusions

Through playing Ag Bank Sim, participants learn key financial, economic, and banking lessons that traditionally were limited to a series of in-person meetings. The Internet environment enhances the student experience, which lead to improved learning. Instructors value the time-saving features of the new game.

References


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