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TOTAL ENTERPRISE SIMULATIONS AND THE INTERNET: ASSESSING STUDENT PERCEPTIONS AND PREFERENCES

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INTRODUCTION

Given the widespread use of Total Enterprise Simulations (TES) in business schools, the popularity of simulations makes it reasonable that researchers should evaluate supporting technologies to enhance and/or facilitate the use of simulations.

STUDENT PERSPECTIVE

While a simulation should be viewed as a challenging yet enjoyable way to learn, the beginning period of a simulation is a critical time where students must learn all of the rules of the game. Also, during the early stages of a simulation, students will inevitably make what they perceive to be errors while making their decisions. These errors tend to be overcome by later decisions and events when the students are more proficient, and thus any early mistakes are accepted. The transmission of decisions, however, is a critical event that is relatively fault intolerant. If errors occur during file transfer, they could have a significant, possibly unrecoverable effect on the outcomes of the simulation. Students must not only be able to make a 100% correct transmission of their decisions starting with the first decision, they must have confidence in the transfer mechanism.

INSTRUCTOR PERCEPTIONS

Some instructors learn one simulation and then are reluctant to change. They know the time and effort it took to become knowledgeable and proficient about the various characteristics and peculiarities of any simulation. In other cases, however, an instructor will either be new, or relatively new, to a simulation. This can create problems in two areas; (1) the added burden of learning data transmission techniques while trying to master the intricacies of simulation administration; and, (2) a lack of familiarity with the simulation makes it more difficult to correctly classify problems in simulation administration.

DATA TRANSFER

The fundamental purpose of simulations is to enhance student learning through the operation of virtual organizations. However, the use of simulations adds a degree of operational complexity and effort to a course's workload that is not directly related to the learning objectives. Techniques which can lessen some of the burden of a pedagogical technique are beneficial to students. The use of the internet was perceived as an effective mechanism for allowing students to be freed from the necessity of making physical trips to the university campus for the purpose of submitting and retrieving game decisions. Even for on-campus resident students, the use of electronic decision submission reduced the constraints of time and location.

Hypothesis: Students would prefer using the internet for electronic data transfer of decisions and results over submitting disks.

ANALYSIS

The Sample

The sample consisted of 52 students attending a medium size university located in the southeast United States. All students were senior level business students taking the capstone Business Strategy course. The students were in two separate sections of the course - Class A had 24 students, Class B had 28 students. **The Simulation**

The assignments for both courses included weekly case studies, lectures, written assignments and a simulation - The Business Strategy Game, or BSG. With holidays and a start-up period removed, 12 BSG decisions were scheduled to be made in each class.

Each student decision in the simulation consists of a two-part process. First, the students run a data entry and display application to record their decision variables on diskette. Second, the data files on the diskette must be transferred to the instructor. Decision disks were manually delivered to the instructor during the first half of the course, and the students switched to using electronic data transfer via Internet FTP

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during the second half. Decision submissions for Class A were relatively uneventful, but the students in Class B had numerous problems in processing the game. While some problems experienced by Class B students were attributable to faulty data transfer, many were legitimately attributable to faulty logic in making decisions by students. Thus, although the students almost universally blamed poor decisions results on data transfer problems, they were often due to poor execution in making decisions.

The Questionnaire

At the end of the semester, a questionnaire was given to the students concerning the simulation and their perceptions. Questions were designed to elicit data on the following topics.

- The location where they transmitted and received files. .
- The file transfer protocol (FTP) software used.
- The relative level of computer expertise possessed by the student.
- The number and types of problems experienced during the semester in electronic data transfer.
- Preference for disks or electronic transfer.

Numerical Preference Results

Overall, there was a clear preference for electronic data transfer (Strongly Prefer = 57.69%). Examined by class, there was an overwhelming preference for electronic data transfer in Class A (Strongly Prefer = 87.5%), and a slight preference for electronic data transfer in Class B (Strongly Prefer = 32.1%). However, when you combine the Prefer/Strongly Prefer options for both disk and electronic data transfer by class, a greater disparity is apparent. For Class A, only 12.5% (n = 3) indicated any preference for using disks. In Class B, the preference for disks was much stronger at 42.9% (n = 12). In fact, of the overall combined preferences, 28.85% indicated a preference for disks (n = 15) and Class B contributed 80% (n = 12) of this percentage. So while only 28.85% of the combined classes preferred disks, four-fifths of those evaluations came from Class B.

Preference Comments

In addition to the numerical scores, comments were reviewed to determine cause for students preferences. For Class B, all twelve students that preferred disks

stated the reason was that it was more reliable. For Class A, the three students that indicated a slight preference for disks gave as reasons that some students did not have computers at home.

For Class A, all 21 students that indicated a preference for FTP gave convenience as a reason. Interestingly, electronic transmission was preferred on the basis of convenience even though 12 of the 21 students used one of the college computer labs to transmit some or all of their decisions.

DISCUSSION

The hypothesis was supported for the overall sample and for Class A. When students are effectively trained and supported on electronic data transfer using the internet, they overwhelmingly prefer that method to using disks to submit decisions and receive results.

Instructor proficiency at both the simulation and the electronic data transfer process are important factors in establishing student preferences. Lack of simulation familiarity combined with a superficial knowledge of the data transfer process, often made it difficult for the Class B instructor to determine whether problems were attributable to the simulation itself, or to faulty file transfer.

CONCLUSION

Electronic data transfer using file transfer protocol (FTP) over the internet is a viable and preferred method for students using a simulation where decisions must be submitted on a weekly basis. It is likely even more preferred for student populations that are not residents and travel to campus primarily for classes.

References and full data tables available from the authors upon request.