

Game Play: Online Delivery of ERP Simulation Game

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Abstract

Many universities are developing or considering online classes and programs. The hands-on nature of high quality ERP education presents a number of challenges and opportunities in online education. The objective of this presentation and extended abstract are to present guidance and lessons learned from the delivery of an ERP simulation game (ERPsim) in a variety of online formats. The target audience for this presentation includes faculty who are familiar with ERPsim in a face-to-face context, and who are considering whether and how to deliver ERPsim in an online format. The online delivery format is applicable to undergraduate and graduate level classes, and can be delivered fully online or in hybrid/blended and flex delivery methods.

Keywords: online, blended delivery, flex delivery, hybrid delivery, simulation, simulation game, synchronous online delivery, ERPsim.

Introduction

When the new president of a southern university system started his tenure, one of the first initiatives was to institute online degrees in many disciplines. As part of the initiative, the system's land-grant and flagship institution designed and delivered online degree programs in several colleges. The first online program offered by the business college is a general business degree. For the transformation of the degree from a traditional face-to-face format to a fully online format, seven departments within the business college developed and implemented an online version of the core business courses. In the next stage of the online degree development process, an array of upper-level business electives were also developed for online delivery. One of these selected upper-level courses was an information systems course focusing on Enterprise Resource Planning (ERP) Fundamentals, a very popular face-to-face elective across all business disciplines in the college.

The ERP Fundamentals course covers the integration of common business processes such as accounting, fulfillment, procurement, and production in the context of an ERP system, specifically SAP. Students first learn the business processes individually with the use of a textbook, classroom lectures, and hands-on computer lab assignments. Then, an ERP simulation game (ERPsim), developed at HEC Montréal (Leger et al., 2007), is incorporated to provide a more complete experience of enterprise integration in an accelerated real-time environment, bringing teams of students together to manage virtual firms in a competitive landscape. When transforming this course into an online format, the most significant challenge was the incorporation of the simulation game into the online experience. The ERPsim experience is fast-paced and requires critical thinking, clear and timely communication, and smooth execution of business processes. Given that the face-to-face and online courses are the same course in the catalog of studies (only

in a different delivery format), a key objective in the design of the online experience was to maintain the high-quality hands-on nature of the course experienced by face-to-face students.

Methodology

ERPsims are available in several variants, including a water bottle distribution game, a dairy logistics game, and a muesli manufacturing game. The objective of the ERPsim game is to maximize profits through the marketing, distribution, and sales of products. ERPsims have been delivered in a variety of formats, including 100% online, blended delivery (combination of face-to-face and online), and “flex” delivery (integration of both online and face-to-face students). For most delivery formats and game variants, students are divided into teams of three to five, depending on the version of the game and the size of the class. Each game consists of multiple rounds of twenty or thirty virtual “days” of around one minute each, punctuated by breaks between rounds that can last minutes or days. Teams are able to make adjustments in real-time while the game is running, and the breaks between rounds are typically used for revisiting higher level strategies and processes. Each delivery method and game variant that has been used at our institution is summarized in the following paragraphs.

ERPsims have been delivered in a blended delivery format (periodic face-to-face meetings with substantial online coursework between each meeting) using all three variants of the game. For blended delivery, the limited face-to-face time highlights the need for meaningful activities during face-to-face meetings, particularly those which are more difficult to accomplish as part of an online course module. In this case, the actual execution of the ERPsim game is an activity that was conducted primarily during face-to-face class sessions. Student lab exercises, in which students navigate individually through accounting, production, procurement, and sales processes, were the focus of several of the online course modules. Other online course modules focused on introducing the game concepts, with recorded presentations and demonstrations highlighting important concepts and steps needed to manage the virtual firms. Teams are assigned to conduct strategic planning exercises, implement initial company setup decisions, and establish team member responsibilities and communication processes prior to the face-to-face meeting. Based on experience using this delivery format since 2007, teams that take this online preparation more seriously are the ones who most quickly achieve operational excellence and strong performance.

The 100% online delivery format has been utilized since Spring 2013. The muesli manufacturing ERPsim game has been the primary game used in the 100% online delivery format. For 100% online delivery, a day and time is determined to conduct synchronous online sessions, and posted into official course listing information. The online synchronous sessions were conducted using a real-time collaboration tool, Blackboard Collaborate (BBC). BBC was utilized to give instructions on how to play the simulation game, how to use the transaction screens within the SAP system to monitor and execute business processes, and how the teams can utilize BBC during the execution of the simulation to maximize communication performance.

At the beginning of the BBC session, students are online in the main BBC room for announcements and instructions. Once teams have been briefed on instructions and expectations, the students are placed into virtual break-out rooms for each team to discuss strategy and prepare for the upcoming round of the simulation game. Additionally, a “coach” (graduate assistant, Ph.D. student, or former student with experience playing the ERPsim game) is placed into the BBC break-out room with each of the teams. The coach’s role is to assist with any technical difficulties the team members may have, and to answer questions while the game is in progress. The instructor monitors activities within the game, floats between break-out rooms for monitoring and assistance, and addresses any emergency issues that a coach cannot address. Once the round is over, the instructor brings the students and coaches back to the main BBC room for debriefing, discussion of results, questions and answers, and preparation for any upcoming rounds. The teams’ performance has been equivalent to the performance of traditional face-to-face format teams.

The “flex” delivery format (integration of fully online students with face-to-face students) was piloted in a business analytics toolkit course in Fall 2015. The water bottle distribution game was used, with teams of two to three members, and the exercise was conducted primarily as a synchronous in-class experience (no pre-class preparation) due to the simpler nature of this game variant. Ten face-to-face teams and one fully online team participated in the same simulation environment. Face-to-face teams were seated together and

were able to communicate using normal methods. The online team used an online collaboration tool, GoToMeeting (GTM), to communicate via voice, text, and screen sharing. The online team was supported by a “coach” who was experienced in the operation of the ERPsim game. The coach was available in GTM, and would provide guidance when team members were confused about an aspect of the game and when it was evident that the team was in need of additional information that would help in the management of their virtual firm. This game was conducted during two synchronous online/face-to-face meetings. The online team, through the support of the coach resource and perseverance on the part of the students, achieved good levels of operational efficiency and finished in a competitive position with the face-to-face teams.

Benefits and Challenges

There are rewarding benefits and inherent challenges with online delivery of an ERP simulation game. A major benefit of this format is the immersion of students in a realistic and complex environment that is similar to the multi-tasking, problem-solving, and communication-driven environments that are increasingly experienced in the modern workforce, where team members may not be physically co-located but are expected to effectively collaborate to solve complex problems. The online simulation game experience enriches problem solving, analytical, communication, and critical thinking skills, and creates a fun and exciting learning environment. Such a rich and immersive experience is almost unheard of in an online course, and can help to differentiate an online course or program.

Challenges were experienced (and lessons were learned) in three broad areas: communication, technology/tools, and coordination. Communication challenges include the inability to read non-verbal communication from the students when assessing understanding, the need for virtual team training and knowledge, team communication challenges during sessions, and effective utilization of break-out rooms for teams. Technology or tool challenges include students having the appropriate hardware and software to successfully participate in the sessions (e.g., headset/mic to avoid extra feedback and noise, virtual desktop software, etc.), limitations of the online collaboration tools, and the students’ need for sufficient desktop work space (e.g., dual monitors to effectively collaborate while managing their virtual firms). Coordination challenges include scheduling of the synchronous online environment and the acquisition of “coaches” for the execution of the game.

While the challenges are substantial, and the synchronous and real-time nature of fully online delivery offers a number of risks, the benefits of offering an experience such as ERPsim as part of a fully online course is of great potential benefit to students and to the programs and departments that deliver such courses. Differentiation of an online course is essential, and the integration of a collaborative and immersive experience such as ERPsim is one avenue to accomplish this goal.

Contributed Materials

Contribution materials to the SAP UA community will include the ERP Fundamentals online format syllabus and schedule as well as a tips document.

Reference

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