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Simulations in sport finance

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Simulations have long been used in business schools to give students experience making real-world decisions in a relatively low-risk environment. The OAKLAND A'S BASEBALL BUSINESS SIMULATOR takes a traditional business simulation and applies it to the sport industry where sales of tangible products are replaced by sales of an experience provided to fans. The simulator asks students to make decisions about prices for concessions, parking, and merchandise, player payroll expenses, funding for a new stadium, and more. Based on these inputs, the program provides detailed information about the state of the franchise after each simulated year, including attendance, winning percentage, revenues vs. expenses, revenue sharing, and stadium financing. The use of simulations such as this one enhances students' organizational skills and students' ability to think critically and imaginatively about the data while applying relevant knowledge and an appropriate strategy to achieve the best possible results. This is particularly important in the field of sport management where few, if any, other simulators exist that are specific to the field.

KEYWORDS: baseball business; computer-based learning; simulation/gaming; stadium/facility financing; sport finance; sport management

The current generation of undergraduate and graduate students is as computer-savvy as ever. According to the U.S. Department of Education (2005), 80% of undergraduate students and 88% of graduate students use computers at home. For undergraduates in 2003, 61% played computer games, 90% used the Internet, 93% used the computer for school assignments, and 37% used the computer for spreadsheets and databases. A lower percentage of graduate students played video games (44%); however, a higher percentage used the Internet (94%), used the computer for assignments (95%), and used the computer for spreadsheets and databases (56%) (United States Department of Education).

Cartstens and Beck (2005) call this new generation of young students the "gamer generation" because of their affinity for video games (p. 22). According to DeKanter (2005), 50% of the population of the United States currently plays video games with strategy games being the most popular. Further, 80% of employees in the workforce under the age of 34 have significant video game experience (Carstens & Beck). Carstens

and Beck argued: “Games and their powerful interactivity and reinforcement of particular behaviors, as opposed to the one way delivery of television, have created an entirely new individual – and as a result, new and different needs for training” (p. 22). Carstens and Beck suggested that in order to be effective in teaching this gamer generation, one must create a curriculum which:

- “aggressively ignores any hint of formal instruction” (p. 24).
- “leans heavily on trial-and-error” (p. 24).
- “includes lots of learning from peers but virtually none from authority figures” (p. 24).
- “is consumed in very small bits, exactly when the learner wants, which is usually just before the skill is needed” (p. 24).
- “allows for people to take risks in a safe environment” (p. 24).
- “allows for players to achieve a skill or talent which is not only meaningful but perceived as having value” (p. 24).

Based on these criteria, the use of simulation technology seems appropriate given the evolving needs of the younger generation of students and will help to develop more knowledgeable, creative, and critical young professionals. However, although common in business schools, there are few, if any, simulations that apply directly to the unique aspects of the sport industry. The OAKLAND A’S BASEBALL BUSINESS SIMULATOR (“OABBS”) is one such program that has been developed in recent years with the specific needs of sport management professionals in mind.

Oakland A’s baseball business simulator

The OABBS is a web-based business simulator that runs through a 15-year period of a professional baseball franchise. The program requires a standard computer, an Internet connection, and web browser software. For a cost of $12.50 per student per semester, students are asked to make over 100 financial decisions each "year." The website, created and run by Sports Business Simulations (http://www.sbs-world.com), provides students with information about each variable and how it might impact their outcomes. The website also provides links to relevant articles and interviews with experts in the field of sport economics and finance. This information helps students make good decisions within the OABBS while also getting students to voluntarily read about the most current trends in the industry, such as pricing and stadium financing.

Inputs

As mentioned, the OABBS asks students to make over 100 financial decisions each year. These decisions are grouped into several different categories (specific item details listed in parentheses):

- Team expenditure and debt decisions (choices include amount of money to borrow, amount of money to draw from reserve, number of front office employees and average salary, scouting and player development expense, marketing expense, and player payroll)
- Existing stadium operations decisions (choices include average single game ticket price, number and price of variably priced games, amount of stadium rent payment, season ticket prices, average food price per person, and parking price per car)

- New stadium configuration decisions (choices include whether or not to build a retractable roof, the number of parking spaces desired, the number of acres of land desired, and the total number of seats and luxury boxes in a new stadium)
- New stadium operations decisions (same as existing operations decisions)
- New stadium finance decisions (choices include whether to use PSL financing, redevelopment financing, naming rights revenue, a food concession loan, and/or hotel tax revenue to fund a new stadium)
- New stadium contractual decisions (choices include whether or not the organization should establish new contracts for food concessions, naming rights, sponsorship, television, and/or radio)
- Negotiation matters with stadium authority (choices include how the organization will negotiate the distribution of various sources of revenue and how much the organization is willing to spend on these negotiations)
- Collective bargaining agreement options scenario (choices include various collective bargaining agreement scenarios which affect the distribution of team revenue)
- Team relocation decisions (choices include whether or not to move the team out of Oakland and how much the organization should spend trying to relocate to a different city)

Students have the most opportunities to manipulate items related to budgeting, pricing, stadium operations, and financing for new facilities. It is these concepts that the OABBS is particularly effective in teaching students. As a result, the OABBS is appropriate for both general sport management courses as well as sport finance courses.

Outputs

The number and variety of these decisions allows the program to provide a wide array of outputs. Most outputs are provided in graph and tabular formats and include traditional indicators such as net operating income, franchise value, and revenues vs. expenses; however, it also includes outputs specific to the sport industry such as attendance, winning percentage, revenue sharing, and stadium financing. The performance of each of the variables contributes to a score for each user after each year. Here, the student has the opportunity to periodically evaluate their performance in the program and perhaps change tactics along the way. Additionally, inputs and outputs are also stored in tables that can be cut and pasted into a spreadsheet program and further analyzed. For instance, the student may want to understand the correlations between certain inputs and outputs in order to determine the best choice of inputs, or calculate the capital gain from team ownership or the annual profit margin.

Benefits of the simulator

The benefits of implementing this form of technology in classes in sport management programs are similar to the benefits outlined by Willis, et al. (1987) and Klopfer and Yoon (2005). Like other simulators, the OABBS forces students to gather data, analyze it, and apply it appropriately to the scenario presented. This process enhances the learning experience of Carstens and Beck's (2005) gamer generation.

However, there are other benefits of the implementation of this technology into the classroom. First, because of the competitive aspect of the program, students tend to

be more engaged with the material when it is presented in this format. Engagement is a critical element of successful simulations (Quinn, 2005). Students spend hours trying different competitive strategies in order to achieve the best score. Additionally, in running through the OABBS multiple times, students frequently click on links to relevant articles and other sources of information. This pursuit of information is completely voluntary and the information provided by the website is relevant and current. Quinn argued that this is a more effective way to communicate knowledge because "people seldom need knowledge by itself, but they need to use it in some way to accomplish a goal" (p. 58). Further, by opening many of the links in new windows, the website ensures that it is easy to navigate through the available information without losing track of progress. Of course, it is the responsibility of the instructor to provide the underlying theory in order to guide student engagement. According to Quinn: "A learning environment has to be designed properly to incorporate engagement that integrates with effectiveness" (p. 16).

Another major benefit of the OABBS is the large number of outputs. Students have a variety of ways to evaluate themselves besides the program-generated score. Effective simulators allow the impact of students' decisions to be "communicated back to players in a way that allows them to infer the results of their choice" (Quinn, 2005, p. 62). Instructors can also choose to evaluate students based on other criteria, such as franchise value, income, total revenue, attendance, or team winning success. Clearly stating the goals for the OABBS is a critical aspect for instructors. It is an opportunity to discuss possible franchise owner objectives (e.g., maximizing franchise value, annual income, team success, overall return on investment, etc.) and what strategies and tactics

can be used to achieve those objectives. Quinn explained: "For the learner to know how to choose when presented with decisions (assuming they have the prerequisite knowledge), a goal should be established that is set up in the story" (p. 57).

Students will also quickly learn that they cannot always control the outcomes. According to Quinn (2005): "The play should not be predictable. Chance should play a role in the action, whether by changing what problems you see or introducing some luck into the ebb and flow of the character's success" (p. 63). The OABBS incorporates what is called "appropriate randomness" into the outcomes. In other words, increasing player payroll will tend to increase team performance but it will not *always* increase team performance. If a student chooses to implement a strategy of trying to field the best team in order to draw more fans to the stadium, they may find that their strategy does not always work. While this is frustrating for students at times, the uncertainty of outcomes is an important lesson to learn.

Perhaps the most important benefit of the program is its direct application to the sport industry. The sport product is different because it is often not a tangible product. Instead, it is an experience where fans come to enjoy all of the components of a sporting event, such as the players, the game, the equipment and apparel, the atmosphere in the stadium, the food, the music, and even the mascot (Mullin, Hardy, & Sutton, 2007). As such, the inputs and outputs are designed to reflect these unique aspects. For example, inputs include manager salary, player payroll, and scouting and player development expenses for those students that want to create a winning environment for their team. Students wanting to create a fan-friendly environment can lower ticket prices, concession prices, and parking prices in an effort to drive up attendance. As mentioned previously,

outputs are not limited to traditional business simulator outputs such as revenues and expenses and include sport-specific outputs such as attendance, winning percentage, and stadium financing. This application to the industry allows instructors to isolate all of the components of the complex sport product.

Challenges of the simulator

The first key challenge is determining a period of time for students to interact with the simulator. For the OABBS, an appropriate time frame is approximately six weeks. This time frame allows students an opportunity to fully reap the benefits of their interaction with the program. Beyond six weeks, students become less engaged as the competitive aspect fades and the concepts in the OABBS become repetitive and lose their meaning.

During the initial stages of student interaction with the program, the competitive aspect of the program does enhance student engagement. However, it can also interfere with effective learning if it is not appropriately monitored. Students can become distracted by their goal of achieving the highest score to the point where they are no longer trying to incorporate the most effective strategy. Instead, students try to manipulate the numbers in a way that yields high scores regardless of the appropriate strategy. Obviously, this scenario interferes with the learning of key concepts and reduces the simulator to nothing more than a video game. However, if instructors encourage students to evaluate themselves based on other criteria and reward effective strategies regardless of score, these negative effects can be minimized.

The criteria to be used for this evaluation will depend on the student's predetermined objectives. For example, if the student's primary ownership objective is to field a winning team, an effective strategy should emphasize player payroll, presence of star players, and scouting and player development expenses while minimizing expenses in other areas of the organization. Appropriate criteria for evaluation would include winning percentage, playoff appearances, and World Series championships. Other commonly used objectives include increasing franchise value, having a positive annual net operating income throughout the simulation run, effectively financing and building a new stadium, and creating a fan-friendly entertainment outlet. Each of these objectives should be evaluated based on the appropriate criteria.

A culminating paper assignment where students are asked to create a series of organizational objectives, describe strategies for achieving those objectives, and implement appropriate tactics is an effective way for instructors to deemphasize the score component of the OABBS and reward an effective competitive strategy. Through this paper assignment, students are also asked to critique their own strategy and provide explanations for their outcomes. With these elements, this paper assignment also serves as an ideal debriefing mechanism. Peters and Vissers (2004) stated that the debriefing process should support this particular type of simulation by "assisting participants in making an analysis of events and processes in the simulation game, of their own contributions to these processes, and helping them to draw conclusions (in line with a participant's own value system) that may be relevant for future real life situations." (p. 77). Given that objectives for real franchise owners do not include a "score" from a

simulation, it is important for students to focus on inputs and outcomes that are representative of the actual world.

Conclusion

The description of an effective learning environment is similar throughout the literature. Allowing students to interact and experiment with platforms that provide information for effective decision-making as well as feedback based on students' own decisions will help students retain concepts more effectively (Harper, et al., 2000; Aldrich, 2005; Willis, et al., 1987; Jones, 1980; Quinn, 2005; Carstens & Beck, 2005). Simulations provide just such a platform. With effective implementation strategies, instructors can utilize new technology to engage students in material that might have otherwise been dismissed, and help to build more well-rounded professionals that are ready to transfer their knowledge to the workplace. Quinn stated:

> We use the terms retention to talk about learning that persists beyond the learning situation and can be applied at appropriate opportunities on an ongoing basis. We use the term transfer to characterize learning applied to appropriate situations not covered in the learning situation. Our goals of learning, then, are to foster retention and transfer of knowledge and skills. (p. 29).

Simulations such as the OAKLAND A'S BASEBALL BUSINESS SIMULATOR appear to be highly effective tools for achieving these goals of learning.

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