

Developments in Business Simulation and Experiential Learning, Volume 28, 2001
HELPING NEW GAME ADOPTERS: FOUR PERSPECTIVES

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Abstract

Any number of problems face an instructor adopting a new game. This paper presents the viewpoints of four individuals associated with a panel presentation on issues and problems faced by someone who adopts a totally new game. The first perspective is that of a new gamester. The second is that of one who has used games before but has not used the newly-introduced The Global Business Game. The third contributor is the game's author who summarizes the materials he created to help the adopter adjust to the game's requirements. The last presenter is a game author but also the publisher of three games. His perspectives deal with problems created for the user by a game designer's decisions as well as self-inflicted problems caused by the new user.

HELPING NEW GAME ADOPTERS

Part of ABSEL's mission is to encourage the adoption of the experiential method for business education. The accomplishment of this mission entails supporting the use of sophisticated business games by encouraging their initial adoption and retention. Past interest in the areas of game adoption and retention has been shown in various panels and papers presented at ABSEL's conferences since its origination. Biggs, Gulkus and Morgandale (1983) studied the types of schools that have adopted business games while Faria and Nulsen (1978, 1979) and Summers and Boyd (1983) looked at the nature of the game user to identify the types of faculty most-likely to use games.

Keefe and Cozan (1985) looked at the gaming retention problem by polling members of the Academy of Management Business Policy division to determine how many used games and the reasons why some stopped using them. Gentry and Brown (1974) cited methods for helping players be less frustrated by a new game, Fritzsche (1975, 1978) and Biggs (1980) presented early panels featuring operational hints for new game adopters and followed shortly thereafter with suggestions on how to make a game easier to administer thus making the game less onerous to a new adopter. Both Low (1979, Biggs (1986) and Biggs and Halpin (1990) performed a broader service by presenting

helpful guidelines to those thinking about adopting a computer-based game for teaching purposes. Smith (1987) presented a paper on elements the game designer should be aware of to make a business game more useable and less error-prone to administer. Taken as a whole these efforts indicate an interest in making it easier for instructors to use games thereby making it easier to make a particular adoption decision.

This panel presentation took advantage of a unique opportunity afforded by the recent introduction of *The Global Business Game* (Wolfe, 2000). When the game's author designed this game particular attention was paid to providing multiple information sites from which adopters could obtain knowledge about what the game does from the perspectives of administration and play. This foresight may or may not have been effective. Alternatively, perhaps no amount of preplanning on the author's part could have overcome the nature and circumstances of the game's potential and actual users.

To present a fresh view of how a new game is adopted, installed and used the panel consisted of four individuals closely associated with business games and *The Global Business Game*. The first panelist adopted the game but had never used a business game for instructional purposes. The second panelist was an adopter of *The Global Business Game* but was also an experienced gamester. Interesting contrasts may emerge between these two types of adopters given their knowledge about the practical side of business gaming. The third panelist will be the game's author. He will present the elements he believed would facilitate (1) the game adoption decision and (2) any help a user would need once game play had begun. The fourth and last panelist is a publisher of business games and one who has had much experience in dealing with game users. Publishers often get a different view of a game's operational problems as well as receiving feedback that is presented in a different form than that caught by a game's author. Given these four different perspectives on the same teaching device, interesting insights should be obtained as to what can and cannot be done to facilitate the implementation of a new game.

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WILLIAM J. RITCHIE: A NEW GAME- STER, NEW GAME USER

My first exposure to business simulation games took place in 1990-1991 while I was a student in an international management class in an MBA program. From a student perspective, and most likely for the game administrator as well, the game was very difficult to use in that it required a fluent working knowledge of DOS and other programming skills. This experience had a negative effect on my overall impression of simulation games in subsequent years. It was not until ten years later that I considered using a game in the classroom. This year (2000) marks the first time I have worked with a simulation game as a Doctoral Candidate and instructor.

While attending one of the Southern Management Association meetings I engaged in a conversation with one of the Thomson Learning representatives. I explained that I was interested in any progress in simulation game technology, but was not familiar with time commitments, instructor learning curves, and level of difficulty of newer games. However, I knew that my International Strategic Management class needed a new venue for learning to supplement the text and cases. As I reviewed the text of *The Global Business Game* (GBG) it was clear that, as a Windows oriented program, it was extremely user-friendly. In fact, the instructor's manual was replete with visual aids depicting the actual steps carried out in the simulation. This caught my attention, giving me greater comfort in the idea of adopting a game for my class.

GAME ATTRIBUTES

A review of the game revealed a number of attributes that would work very well in tandem with my current curriculum. Specifically, the GBG has a very logical flow that models the real-life experiences that an individual would undertake in the formation of a company. For example, the Player's Manual emphasizes the importance of team formation and development. This initial aspect of the game works in parallel with international team-building exercises that utilize personality tests such as the Myers-Briggs Type Indicator (MBTI) or the Keirsey Temperament Sorter. The GBG also covers key aspects of strategy such as the development of mission statements and overall organizational structures. These major themes are also covered in my normal class presentations, providing the students with an opportunity to apply what they are learning in the context of real management teams.

The GBG places a great deal of decision-making power in the hands of the administrator, but without overwhelming him/her with details. For example, the GBG is replete with options regarding one or more countries of interest, changes in production costs, team and industry size, economic scenarios and more. But all of these areas have defaults that allow the administrator to avoid making choices if the time allotted for learning the game is at a premium. This is a

real plus, considering that the time available for administrators is extremely variable.

The game also facilitates direct interaction between the administrator and teams. This aspect of the game makes it very personal, and emphasizes to players that they are making decisions in real-time. Bulletins, administrative fines and credits, critical incidents, and the sale and purchase of patents are just a few examples of the positive means of interacting with players on a quarter-by-quarter basis. The benefit in this is that the administrator can relate one-on-one with players regarding their intent to sell patents, or reward a company financially for helping out another team or sharing information by providing monetary incentives.

The GBG expands the vocabulary of traditional business students. The fact that the GBG is comprehensive in its business coverage truly enhances the learning process and overall understanding of otherwise myopically oriented students. For example, recently an MIS major approached me saying "I had no idea what it really meant to float a bond". Other management majors have commented that they really did not have a grasp on the concept of "subassemblies" and inventory levels until playing the game.

PREPARATION FOR PLAY

Given the constraints on my time at the beginning of a term, I knew that I would not be able to devote a great deal of time to learn the game prior to the first round of implementation. An additional constraint was the fact that I was scheduled for teaching six-week sessions, which meant class meetings every day. I was faced with the choice of either postponing the game until later in the year, or introducing it to my students as a learning experience for both of us. I chose the latter.

As a new user, I was keenly aware of the fact that I had obtained only a cursory understanding of the intricacies of the game just prior to play. The GBG was introduced to the students as "a new learning experience for them and for me". I emphasized the fact that many of the students would gain expertise in certain areas of the game prior to my full understanding, and that I would be calling upon such content experts in times of need. In keeping with my goal of using the GBG to model the "real world", I reminded students that at some point in the future they would be working with or for managers that did not possess the content knowledge of their subordinates. But that managers are many times hired for their expertise in coordinating, planning for, and managing work teams. I suggested that my role would be one of "Facilitator" and "Coordinator/Manager" and that my goal for the students was that they hone their "people skills" through this exercise as well as their knowledge of business content.

To facilitate team interaction, I informed the class that there would be rewards for teams that documented answering the questions of other teams. This concept was presented in the context of real-world examples of companies finding out key strategic information from friends in similar industries. The rewards were usually \$20,000 per answer.

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A number of teams took advantage of this opportunity. In keeping with my goal of maximizing my efficiency as I learned the nuances of the GBG, I chose the simplest scenarios for the first few rounds of play. For example, using the United States and one other international country provides the necessary international elements, while minimizing administrative input such as using only two currency rates, minimal shipping points and factory locations to monitor and trouble-shoot. I also selected basic defaults on economic conditions and production costs associated with raw materials and worker labor rates. This allowed me to focus my attention on grasping the logistics of game play.

“Grade Obsession” is a common ailment in many of my senior-level students. These students are striving to bolster their GPAs to obtain entrance into graduate schools or gain entry into key corporate positions. With the uncertainty associated with the first few rounds of GBG’s implementation, I anticipated that student anxiety might be heightened. In an effort to minimize “game and/or grade anxiety” for students who obsess over grades I decided not to tie their grades directly to the game’s economic outcomes of ROA, ROE, and composite score for the first few rounds of play. In retrospect, this was a good decision. I have found that just by nature of the fact that my students are business majors, they are already fiercely competitive with each other. The direct connection of company performance outcome to student grades would have added a layer of anxiety to the game that would have been counter-productive to my overall goals of building teams and relationships. It is noteworthy that I chose other means of grading the game such as their end-of-term project and their presentation of team performance. These two assignments provided ample opportunity for students to demonstrate their academic prowess. Surprisingly, even without the direct performance-to-grade relationship, most student teams adopted a somewhat secretive posture and were very careful about sharing strategic information with others.

WORDS TO THE WISE

Simulation game experiences are replete with uncertainty and change. This environment brings out both the best and worst in students. I have found that it is best to present this scenario to students in the first class meeting, a form of disclaimer if you will. I inform the students regarding the simulation game that my class will be filled with uncertainty and that students will be expected to perform well under such conditions. I suggest further that if they are not inclined to work in this context, they have many other class options within the college of business. This statement “up front” prepares the students for the worst. In the majority of cases, at the conclusion of the simulation, the students report that it was an extremely favorable experience.

The end-of-term project and class presentations are wonderful tools for de-briefing teams and for accumulating an administrator’s “library of hints and suggestions”. Be sure to include questions that prompt the students to suggest changes in the game and/or its administration. I review

these suggestions regularly to ensure that I am improving the game delivery.

Since many simulation games utilize floppy disks for information exchange between students and instructors, a simple but sometimes problematic issue is the condition of the disks. I Require students to bring “New” diskettes to the initialization process. This eliminates past problems such as student disks that have been dropped, stepped on, and run over by cars before using them in class. I also emphasize the importance of gathering and interpreting information in the game. The GBG’s Merlin Reports prove to be useful in this regard. Teams that made use of these reports have repeatedly outperformed teams that ignore such reports. The reports are also a good transition into topics like environmental scanning and industry analysis.

It is useful for company performance to ensure that each team has at least one person with an interest in finance or accounting. If this is not possible, I compose teams by using Myers-Briggs (or Keirseley Temperament Sorter) typologies. Students can find out their MBTI by taking a test online. The test takes about 15 minutes and is located at the web site <http://www.keirseley.com/cgi-bin/keirseley/newkts.cgi>. Once the students are equipped with their individual typologies, it is relatively easy to assign them to teams based upon individual strengths. For example, students with high scores in Sensing, Thinking, and Judging usually work well (i.e. ISTJ, ESTJ, ESTP, etc.) with facts and figures. I make every effort to ensure that teams have some “options” people, such as NTs, NFs, NFPs, NTPs as well. This not only balances the teams, but also provides an excellent forum for talking about team composition and roles. As with the administration of all personality tests, students should be informed that these tests are not designed to label individual behavior, but merely to help identify individual preferences.

The foregoing paragraphs highlight some recommendations that have proven to be useful in my first experience with a simulation game. The list is certainly not exhaustive, since I am learning more about what enhances and detracts from the simulation experience with every round of play. All things considered, one of the most important factors that have enhanced my simulation experience is my focus on open communication with the students, especially in the area of knowledge (or lack thereof) of game content. Given the wide variety of variables associated with simulation games, the learning curve for new game administrators can appear daunting. Certainly, this deters untold number of potential game adopters. But this need not be the case. Those who are initially reluctant to embark on a journey into the world of business simulations may be pleasantly surprised by what they find if they just take the initial step of adopting a game and approach its implementation with an “incrementalist” view. Specifically, a large portion of administrator learning occurs during the actual game play but in small pieces. In my experience, there appears to be no “best” means of attaining a comprehensive *a priori* understanding of simulations. However, an effective way to

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accelerate the learning curve is to acknowledge your newness to the simulation experience and perform a trial run of the game with students for the express purpose of attaining game familiarity. This not only provides greater insights into the nuances of a simulation, but also bonds the learner and the teacher through a mutual learning pursuit.

ALFREDO MAURI: GETTING TO KNOW THE GLOBAL BUSINESS GAME: AN EXPERIENCED BUT NEW GAME USER'S PERSPECTIVE

Simulations are part of the requirements of the undergraduate Business Policy course at Baruch College. This implies a large undertaking as we teach approximately 80 sections of BPL5100 in an academic year. We have been using Jensen's *The Business Management Laboratory* (Jensen, 1996) for about ten years. In our setting, each instructor administers the simulation with the support of teaching assistants working in the simulation lab. The teaching assistants enter the students' decision sheets and produce the simulation reports for each section.

What made me start looking for a new simulation is that I was assigned to teach an EMBA course on international management. This course needed to be revamped. The Director of Baruch's Executive Programs suggested using a computer simulation during the course to provide a hands-on experience on managing a multinational company. In addition, this course would support other courses that simultaneously focussed on strategic management.

SEARCH AND ADOPTION PROCESS

During the early stages of the search process, I participated in a very useful discussion group at the Business Policy and Strategy (BPS) network of the Academy of Management. In that discussion, many faculty members shared their experience on the use of simulations in strategic management courses. Additionally, a colleague suggested visiting the ABSEL website. I found several feasible options for simulations with an international management focus.

The short list of games included: Thorelli's *Intopia* and Thompson and Stappenbeck's *The Business Strategy Game* (BSG). I contacted the corresponding authors and followed a detailed review of both programs. Basically, I leaned in favor of BSG because of its simplicity and the favorable reviews it had gotten during the discussion at the BPS network. I installed it on my computer and did an in-depth review for about a week. I was pleased with the simulation. The day before sending the book order to the bookstore, however, I received an examination copy of *The Global Business Game* (GBG) from South-West College Publishing. After reading the players manual, I was very excited. The GBG had a clear focus on international issues and seemed an excellent tool to teach the complexities of competing in a global industry.

From the beginning, I was very impressed with GBG's conceptualization of competition in the global TV industry. As soon as I received the administrator's manual, I evaluated the program for about a week. The evaluation process consisted of reading of both the player's and administrator's manual, and installing the simulation programs on my computer. I was very pleased with the GBG's user-friendly interface. The common features of programs written for Windows were available and worked accordingly (opening, saving, printing, copying, pasting, etc). I was particularly interested in the data entry and output screens. These were easy to understand and intuitive. I conducted a few simulation runs using a limited number of firms, and the results were consistent with those described in the manual. I also evaluated running the simulation using data stored in a zip disk. I expected running the simulation programs at both my office and home computers, while keeping the simulation data in my zip disk. GBG approach was good because the simulation data was kept in one file. Similarly, the students' data was kept in one file as well. This file contains each firm's decision screens and the results of the previous quarter. This facilitated the interaction of students and administrator because decision files and program outputs could be sent by email using one file per firm. GBG also provides very good information helping the program's administrator understand easily what is happening at each firm. The administrator's outputs include comparative financial statements, comparative operation reports and ratio analysis for all firms in a given quarter. After a few days I contacted the author for clarifications and minor typos in the manual.

PREPARATION BEFORE THE SIMULATION STARTED

The preparation phase consisted of conducting trial runs to evaluate GBG's input, output screens, and the integration among a firm's functional areas and overseas operations. I created a trial simulation with limited complexity operating in the U.S. and Mexico. I was very concerned about the ability to predict with reasonable certainty some of the program outputs to increase my understanding of managing a firm in the game. To do this, I constructed a series of decision support spreadsheets as a key tool to help the process of learning the simulation. The GBG provides an excellent spreadsheet platform because of the compatibility between GBG's input and output screens and Microsoft Excel. This integration is due to the use of Microsoft VisualBasic as GBG's main programming language. A simulation user can easily copy and paste information back and forth between GBG screens and Excel so that Excel spreadsheets can become an important tool for processing information and help in the decision-making process. Excel also provides great flexibility because the spreadsheets can be easily modified and improved by students as they learn more about the simulation.

In these early stages, I created the production sheet and then tested its results using several cold runs of the simula-

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tion. The results were used to check how precise my production calculations were. With the author's help I was able to work out discrepancies between the simulation results, the manual's presentation and my expectations. South-Western's team rapidly fixed some programming "bugs" while I modified the spreadsheet. I also outlined marketing and administration spreadsheets. By the end of this phase, I was able to produce relatively accurate estimates regarding the impact of production decisions on a firm's operational and financial outputs. I was also able to evaluate the impact of marketing and other decision variables on the respective lines of the Income statement and Balance Sheet.

UNDERGRADUATE COURSE

I used the GBG in an undergraduate course of Business Policy. Some students were concerned for the reasons behind using a different simulation to what other sections were using at Baruch. However, at the same time they were also excited because managing a company producing TVs in a global industry sounds a lot more interesting than producing dinnerware in a mature industry.

During the beginning of the semester, we had five two-hour class sessions, including a trial decision workshop, dedicated exclusively to the simulation. I used the Power-Point slides available from the game's website during the initial sessions. These slides allowed creating positive class expectations because I could go through all the exiting features of the simulation in a quick way.

I complemented the slides with my own material to support the class discussions. I provided the students with my production and marketing spreadsheets with the understanding that these sheets were part of a "work-in-progress" information system that they needed to complete. These spreadsheets were helpful as they illustrate insightful calculations on how the simulation works. I brought a computer with a projector to the classroom and illustrated how to use the spreadsheets. The spreadsheets were available to all students by posting them on the course web-site. Later, GBG's author provided me additional spreadsheets for cash flow, subassemblies, and income statement pro-forma calculations. These spreadsheets were very helpful and I posted them on the course web-site as well.

During the class discussions, I made emphasis on visualizing what was going on to gain an intuitive understanding of the simulation context. GBG player's manual provides excellent information on the industry and firm context. The logic of the game makes sense and allows students to think logically as production, marketing or finance managers working at a company producing TVs. After the context was understood, the rest of the class discussions focused on the calculations of the decision support spreadsheets to understand the details.

After the trial period, we started a simulation run of ten consecutive quarters. The evaluation criterion was exclusively based on different measures of firm performance. The first five quarters were scheduled at a pace of one quar-

ter per week, and the last five were very intensive at a rate of two per week. Three out of six teams had a quick start. Very quickly they started bombarding me with questions and issues about plans and decisions that were not working according to their "expectations." Whenever I was not able to give an adequate answer, I contacted the author. Their response time was reasonable and their answers were adequate. In several instances, these inquiries ended up with the creation of an application "update" that solved the problem.

During the first four quarters of the simulation, the primary objective was for students to understand the process of achieving "functional integration" or creating an adequate balance between what a firm can sell, produce and finance. Upon the arrival of the fifth quarter, firms had the option of expanding operations into Mexico. Here the objective was achieving international integration between the operations of geographically dispersed company units. To facilitate understanding and reduce complexity, the exchange rate between Mexico and US was fixed during this period.

The results of this session were very impressive. By the end of the term, I would say that four teams had a clear understanding of how to achieve both the integration across functions and the integration across borders, while two teams were moving towards such an understanding. We also conducted a debriefing session with very positive feedback.

EMBA COURSE

The EMBA course started at Baruch about two months after the undergraduate session. The expectations of the course were very different. In contrast to the undergraduate course in which students had no previous exposure to other strategic management courses, the EMBA program has a strategy focus. In addition, students in the executive program have significant working experience. Given this setting, I scheduled the first twelve hours of the course to the GBG. One two-hour session was held in the regular classroom, but the remaining ten hours were held at the computer laboratory. In addition, some of the undergraduate students were invited to attend the last session at the computer lab. The idea was to provide a hands-on experience in which questions could be answered with the help of a computer, and give an opportunity to practice using the simulation software and the decision-support spreadsheets. At the end of this period students submitted a trial decision which coincided with spring break. During the break students were allowed to submit "what if decisions" to gain experience with different simulation scenarios. Some teams also submitted a second trial decision.

After the trial run, we scheduled eight simulation quarters for the remaining of the term. Decision files were due by e-mail early in the mornings of the weekly class sessions. I ran the simulation program before the class met and the result files were e-mailed after class. In the following two to three weeks, there was a lot of anxiety within

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groups. We had several private meetings and began having lunches with different groups to provide guidance and answer more specific questions.

Given the longer preparation time and greater student experience, the EMBA class was allowed to expand internationally from the first simulation quarter. However, the expansions were limited to US, Mexico, Germany and Spain and not Taiwan and Thailand in Asia. Several firms invested in plant expansions in Mexico and Europe during the initial quarters. Teams were concerned because of the initial investments, which generated relatively important expenses and no revenues. However, after two quarters, these subsidiaries were ready to generate money. The international expansion created a very interesting competitive environment. All firms were producing and selling in at least two countries, and many were operating across continents.

During the first four quarters of simulation, I helped teams by not letting any firm incur an overdraft. The initial investment phase required issuing significant amounts of debt and equity to raise the cash needed to pay for the capital expenditures. The students were able to calculate the cash outflows due to the expansion. But, they often miscalculated the increase in working capital required to support the larger operations. The new working capital included financing raw materials inventories, the production of finished goods and account receivables. This external help allowed students to realize how to manage the cash position of their firm. I stopped this practice during the second year.

However, I continued the overdraft help when I thought that the overdraft was not the students' fault. In particular it happened several times with the automatic loans between headquarters and subsidiaries. The GBG allows subsidiaries to borrow funds automatically from headquarters when they face a cash deficit in a country. This feature allows the person in charge of finance to manage cash in a consolidated/global basis. However, the feature does not work from the subsidiaries to the headquarters. When subsidiaries have excess cash and headquarters face a cash deficit, the firm gets an overdraft. I thought that this was unfair. When it happened, I manually transferred funds from the subsidiary with excess cash to headquarter to avoid the overdraft.

The EMBA firms experienced significant logistical problems when operating between Europe and North America in particular when using the surface shipping method. A portion of these problems was associated with programming bugs, which again were promptly taken care by the author. I recommended for all firms to stop using surface shipping because the goods were virtually disappearing (perhaps they were being held at the GBG's customs for inspection). However, the most important lesson during these logistical problems was that the students understood the complexities of operating in an international environment, in which a lot of things may go wrong.

The results of the simulation in the EMBA class were excellent. During the debriefing session all students had

positive comments and offered suggestion that may be applied in future courses. For instance, some students suggested starting the simulation before the winter break to increase the time to understand the game. This may allow extending the number of simulations quarters during the term.

CONCLUSION

Learning the GBG requires commitment from the instructor. The preparation phase was very important. The combination of using spreadsheets and cold runs worked well for me. In the early stages, I learned how to operate and run a firm by creating an industry with only a few firms. I learned the logic of achieving functional and geographic integration across different company units. As you learn more you become more proficient and can see the more complex interactions.

Students' preparation is also important. They need to read the chapters before they come to class. I used an interactive teaching style in which I asked questions and students came up with the answers. This worked well in the undergraduate class. But was not effective in the EMBA class. I believe that this was because most EMBA simulation sessions were held in the computer lab where there were lots of distractions. Next time I will organize it differently.

The trial decisions were an important teaching tool as well. Students needed to know that they could learn the intricacies of the GBG with no penalties in their financial results. One trial is a must, but two trials are better. The two trial quarters with "what if decisions" worked well for the EMBA class. After the trials they had a much better idea of what they needed to do to operate their firm.

Limiting international complexity was also important. It would have been hard for the undergraduate class to handle more than Mexico and the US. In fact, they would have been fine with just the US, but I wanted to examine the international environment in greater depth. In case of the EMBA's, limiting operations to North America and Europe worked fine. But next time, I will use the GBG's full geographic scope and international complexity.

The instructor needs to have a good understanding of what is going on in the game. The instructor needs to know what each firm is doing and needs to keep communicating with them. The GBG provides excellent information tools to help the administrator figure things out. I usually spent about hour examining the many industry and firm reports of a given quarter. In addition I started each class session discussing the results, and held many informal meetings with each firm.

The GBG is a good tool to help teaching strategic management and international business concepts. The simulation is realistic, challenging and fun. Students gain first hand experience in crafting the strategy and managing the complexities of a global firm. In particular, running a simulation allows breaking the "monotony" of using cases and

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engages students in a healthy rivalry and competition that keeps them motivated while they learn strategy.

JOSEPH WOLFE: *THE GLOBAL BUSINESS GAME*-- THE AUTHOR'S PERSPECTIVE

A paradox has been noted (Cannon, 1995) in business games and this paradox could not have been more obvious than that contained in the opening remarks by Stanley Vance (1974, p. 7) at ABSEL's first conference. On making recommendations about the factors that would make a business game sustainable it was stated to "keep your game understandable and simple in structure" followed by the advice to "make it realistic." This constant and commendable call for realism unfortunately makes a game more complex while simultaneously making the game more difficult to play, administer and explain to players. This all serves to limit the number of course-related lessons and conclusions that can be drawn from the experience (Fritzsche and Cotter, 1990).

In designing *The Global Business Game* (Wolfe, 2000) the author had to deal with the dilemmas associated with this complexity paradox. The game had to be complex as it operated at the international level with allied currency fluctuations, different manufacturing and distribution costs and financial markets. It also had to be all-inclusive regarding both the complexity and interactions associated with an organization's functional efforts as well as the numerous strategies that could be employed by a firm operating at the global level. The author, fortunately, had both traditional and non-traditional or "modern" technologies available to him. The traditional technologies were those that have historically been used by all game authors—"hard copy" descriptions and write-ups in the Player's Manual and the Game Administrator's Manual. The non-traditional or modern technologies are those which are uniquely associated with the advent of Microsoft's Windows™ and the internet. The following two sections detail how these technologies were used in hopes of making a relatively complex game more-easily understood by players and implemented by instructors.

TRADITIONAL METHODS

Player's Manual. Within the game's Player's Manual the author tried to deal with the game's complexity by insuring that every aspect of the game was explained or exemplified 2 to 3 times in various places. As an example the elements that went into the game's cost of goods sold was explained when its entry on the firm's Income Statement was described, in the manual's Production chapter where the components of this entry are exemplified and in the game's Finance chapter.

The manual also featured a set of initial Frequently Asked Questions (FAQs) by functional area. Regarding the game's computer interface screen captures were used to show the user what to see and expect when running the

game's player application, initializing the company, entering decisions and saving them and exporting results.

Game Administrator's Manual. The manual dealt with the game itself in more technical detail than the Player's Manual while also emphasizing the pedagogical nature of business gaming. A simulation overview was provided as well as a short history of business games. Great detail was employed regarding preparation for play. This was broken down into three basic elements—How the instructor, how the game and the students should be prepared for the gaming experience. The instructor preparation section recommended a "hands-on" approach while suggesting a number of ways to obtain this experience. The nature and instructor requirements associated with the experiential learning method were also presented.

The manual's pages on preparing the simulation itself for its use at the particular site entailed how alternative game configurations would accomplish different teaching objectives, the pros and cons of various team selection methods and team sizes, how the game's scenarios can be presented and edited and details on the game's various company performance indicators. Screen captures were used to show the user the computer interface that should appear as part of the game's installation and set-up operations.

The section on preparing the players dealt mostly with using the team-building and goal-setting exercises that were included in the Player's Manual. The objective here was to help players create cohesive and output-oriented teams.

The remaining sections of the Game Administrator's Manual covered the "answers" and rationales for the responses to the game's ten Critical Incidents, various ways to go about fixing game-play problems and the nature of these problems, a set of administrator and player FAQs, how to conduct a game debrief and where to find additional, on-line help about the game. The manual's last section cited "Friends of Business Gaming and Experiential Learning" in hopes that the user would exploit the collegial relationships available and to also demonstrate that a larger community of like-minded individuals exists.

MODERN METHODS

Windows™ The game's Windows™ operating environment allowed for a very active and attractive user interface for both administrators and players. Multiple drop-down windows were employed and the game's menu bar was logically ordered along with reasonable task sub-components. Firms can reduce the size of their Operations Report while simultaneously displaying narrowed versions of their Marketing Decision Sets by grabbing the image's handles. The Game Administrator has an overview of the entire simulation's operations through Game Explorer.

The Windows™ on-line "Help" feature was also used extensively. The game's major components, terms, definitions and concepts were defined in a simple manner in the Player Application. The same components were also used in the Game Administrator Application but in this case the

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definitions were greatly expanded along with appropriate page numbers. Additional topics, germane only to the Game Administrator were also included in "Help".

Internet. The advent of the Internet has allowed for much faster and more accurate communication between authors and users as well as the downloading of many discretionary supplemental materials. Much use was made of this aspect in creating *The Global Business Game*. A website for it was established early in its life and it has been a growing source of user information and materials. It has six of eight major sections related to supporting the game—Game Administrator Resources, Player Resources, FAQs, Strategy Suite, Talk to the Editor and Meet the Author. The largest of these section is the one devoted to the Game Administrator. It contains the following:

- Game Updates—Due to the game's recent vintage a number of upgrades have been made to improve its functionality. These can be downloaded by adopters after they have registered with the publisher. A separate GBG User Group has been created to notify adopters about upgrades.
- Simulation Overview
- Simulation Highlights
- A History of Business Games
- PowerPoint Presentation Slides—GBG Orientation, GBG Initialization and GBG Decision Set
- Excel Spreadsheet Decision Making Aids—ProFormaCashflow, Subassemblies, CurrencyConverter, ProFormaIncome and Laborcosts
- Minimum System Requirements

The Player Resources section contains updates to the Player's Application, the PowerPoint Presentation slides and a list of the game's minimum system requirements. The FAQ section has been greatly expanded as users have questioned the author over items and details he thought he had adequately covered in the Player's and Game Administrator's manuals. Registered game users are offered the opportunity of submitting questions directly to the author via this webpage.

The "Talk to the Editor" section allows users to communicate directly with the game's Executive Editor at South-Western College Publishing. The "Meet the Author" section contains a short biographical sketch of the game's creator while also providing a hyperlink to ABSEL's and *Simulation & Gaming's* websites.

CONCLUSION

Based on his years of experience with business games, as well as attempting to improve upon the "best practices" other game designers have used for supporting their games, the author of *The Global Business Game* tried to anticipate the most-common types of problems and questions players and Game Administrators might come across. To some degree he may have been successful. In addition to creating the materials presented in this paper he also operated under

a consulting relationship with the publisher. This relationship insured his availability to users which also demonstrated a strong commitment by the publisher to the support of this product.

Most questions posed by users had their answers already in the texts or support materials. Thus these questions may have been more in the nature of affirming notions already deduced by users rather than genuine quandaries. For those areas that produced consistent questions a set of errata sheets were prepared and these became part of a "Welcome" package sent to all new users via the GBG User Group. A serious oversight in compiling the Player's Manual occurred with the omission of an Index. This Index, however, is currently being culled and will be made available at the game's website.

KENNETH GOOSEN: IDENTIFYING AND SOLVING ADOPTION PROBLEMS IN BUSINESS SIMULATIONS-- A PUBLISHER'S PERSPECTIVE

Adopting and implementing business simulation software usually creates problems for users. Perhaps a more suitable term would be "presents challenges". When viewing the problems simulation users should be classified into two broad categories because the challenges they face, as well as the solutions require, are different. The user types are:

Experienced game users
First-time game users

First-time users can be sub-classified as:

No prior adoption or user of any simulation
First-time user of a specific simulation

First-time users of a specific simulation are likely to have less problems because of their general experience with other simulations. Even so, users who are experienced in using simulations will have problems when the steps required to properly implement a simulation have been skipped or not properly followed. First-time users of any simulation are the focal point of this presentation. While some first-time users may have participated in a simulation as a student this type of experience is of limited value in implementing a simulation.

Simulation usage problems can be classified as avoidable and unavoidable. Avoidable problems are those that arise because normal and precautionary procedures were not properly followed, skipped, or because they were implemented too late. Unavoidable problems are problems that arise that are beyond the control of the simulation administrator. For example, the game administrator has no control over whether a team disk is corrupted or lost. The administrator also has no control over internal glitches in

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the simulation's software. However, there are many techniques that can be learned and used to recover from these unavoidable problems when they occur. This paper is primarily concerned with the discussion of avoidable problems.

AVOIDABLE PROBLEMS

The first-time user can eliminate or substantially reduce avoidable problems by scrupulously following the steps required to properly implement a simulation. First-time users, who have had no prior experience with any simulation, do not realize that a poorly implemented simulation will result in problems that could easily have been avoided. Hopefully, the user's guide will clearly explain and strongly recommend required procedures. As a simulation publisher I know from first hand experience that first-time users frequently engage in poor implementation practices. As both a publisher and as an author, I can almost be certain that a game in the hands of a potential user has not been adopted if I have not received a call about either avoidable or unavoidable problems.

What can be done to help first-time users? The help needed is fairly simple-- The steps required to properly implement a simulation need to be identified and clearly explained. The basic principle for a successful first-time use of a simulation is: Prepare far in advance of the course's starting time. This involves:

1. Installing software on the computer
2. Testing the software
3. Making practice decisions
4. Performing sensitivity analysis on demand variables
5. Understanding consequences of decisions
6. Learning the student manual

For first-time users, what is needed is a good user's guide whose scope is much broader than merely the simulation's technical aspects. None of the currently published simulations, including the simulations I publish, come with an adequate user guide that meets the need of the first-time user.

THE NATURE OF AVOIDABLE PROBLEMS

Avoidable problems happen because first-time user often:

1. Do not install software the simulation software until classroom usage begins. As a publisher of software, and as an author, I am amazed at the number of first-time users who attempt to install software after the first set of decisions have been collected. Because first-time users and student players are likely to make all kinds of input errors and are likely to have misunderstood critical setup procedures, fatal processing errors will almost always occur.

Users, often in a state of panic, frequently call authors or the publisher wanting immediate help.

Many problems associated with use of software can be avoided if the simulation is installed and tested several months before class begins. Also, users who do not test-drive software are unlikely to have much knowledge about the game's rules and constraints thereby making mistakes when advising students. As a publisher, I have had the opportunity to observe how much time elapses between the software's acquisition and its actual implementation. In too many cases, this is only a few weeks prior to actual implementation and in a few cases, acquisitions and adoptions have been made after classes have begun. This creates a personal dilemma. As a publisher I want adoptions because adoptions lead to sales. But I also want the potential customer's student too achieve a positive learning experience. Do I advise the customer to wait or do I say nothing and sell manuals?

A poorly implemented simulation is certain to result in a bad experience for the instructor and the students. And on a number of occasions this is exactly what has happened. One professor, after attempting to process the first set of decisions, collected all of the books from his students, returned them to me, and demanded a refund. In this instance, the professor had bought the books directly from my publishing company. In this case, I refunded the cost of the manuals.

A new problem concerning installation of simulation software has recently developed. Many universities have placed severe restrictions on the installation of new software. Individuals are not allowed to install programs on their own office computers. The software must first be approved and then may be installed only by the administrator of the school's computer system. Delay in installing the software in these circumstances definitely is not a good idea.

2. Have not test-driven the software. First-time users or adopters need to set up a test industry of two to three teams and actually play the game for several periods. Skill in using simulation software can be easily developed simply through practice. This practice should take place prior to actual implementation in the classroom. Driving lessons are important in learning to drive an automobile, and first-time users of a simulation should take self-taught lessons on how to use simulation software. The user needs to learn how to:

- Set up a new industry
- Create student input disks
- Process decisions
- Print decision results
- Rerun decisions when input errors are discovered
- Recover corrupt or lost disks

Even though the printing of simulation results would appear to be a simple task, there is no guarantee that at the start the

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software will immediately work with the user's computer or the user university's computer system. The printer settings within the software may not be compatible with the computer system of the user. The time to discover this is before and not after simulation usage begins.

3. Have not made practice decisions. Reading the participant's manual alone is not sufficient. The first-time user needs to actually experience the simulation before the students engage in making decisions. The consequences of decision-making are not necessarily self evident from reading the participant's manual. Decision consequences are learned by making and processing decisions, that is, playing the game. Simulations involve rules and constraints. For many decisions there are minimum and maximum decision values and these constraints must be recognized in order to make good decisions. It is essential that the user of a simulation understand the simulation scenario and the rules and constraints presented within that simulation. To do this, an investment of time is required. One reason many professors do not use simulations, or have ceased to use them, is because they recognize that the startup time is greater than they are willing to give.

In learning the software, and also the simulation's scenario, it is possible to kill two birds with one stone. Playing the simulation by setting up a test industry will compel the user to learn the more important rules and procedures. In making practice decisions, it is important that the first-time user exert a reasonable effort to make good decisions.

Making test decisions is the best way to learn both the simulation software and the student manual. By making test decisions and learning all the steps involved in processing, the first-time user will have eliminated the need to make midnight hour frantic calls to the authors or to the publisher for help. Unfortunately for publishers and authors, the first-time users who procrastinate usually blame the software for being poorly designed. Following good implementation steps in a timely and proper manner will contribute greatly to eliminating avoidable problems.

Simulation software ideally should be able to correctly process every permutation of decisions. Of course, a 100% achievement of that goal is not likely. The amount of time required to do this type of beta testing on the part of the authors can be overwhelming, particularly in the case where the simulation is the sole product of one or two individuals. Unfortunately, students playing our simulations are often the actual beta testers. When a serious flaw in a game is found, the instructor whose students found the flaw may be in serious trouble. In many instances the game cannot continue until the software has been fixed. All the publisher can do is request that the authors fix the program and use Fed Ex overnight delivery or send the fixed software as an e-mail attachment in order to get updated software into the hands of other current users. If a quick fix cannot be made, the user made have lost one or two weeks of classroom playing time.

Because simulations can contain flaws and quirky demand behavior, it is important to make practice decisions well in advance of actual use. For simulations that have come into the market for the first-time, or for simulations that have just come into the market as a new edition, it appears to be a law of the universe that software glitches or flaws will exist. It is very difficult to go through a demanding beta testing process that probably should precede the publishing of a new edition. As a publisher, I know that a number of users that are happy with an old edition are reluctant to be the first users of a new edition. And even if an old edition has been used for a number of years, this does not mean that a newly released edition will not contain new glitches or software problems.

In my own simulation, one flaw existed for over twenty years, and was caught only when a team of students made a particular combination of decisions that were not rational but nevertheless valid. Also, another flaw was found in a more recent version when the professor extended the play to more than ten periods. Very seldom do users play the simulation for more than five periods. But for this professor, this glitch was serious, because until the flaw was corrected the simulation could not be continued beyond the tenth year.

In some cases, the consequences of decisions when processed do not behave in a manner suggested by the student manual. In these instances, it is difficult to determine whether the problem was with the manual or with the software. As a publisher and, also, as the editor of the simulations that I publish, I have had to carefully read and edit simulation manual manuscripts for errors and consistency. Authors are not, and probably cannot be, good editors of their own material.

In the past, publishers such as R.D. Irwin accepted camera ready copy of manuals from the authors. This is a poor practice and in many cases errors that could have easily been caught by independent editing cause frustrating problems for users and students.

4. Have not performed sensitivity analysis on demand variables. The heart of any market-based simulation is the demand algorithm that computes units sold and back orders. How this algorithm works, and the relative sensitivity of the various demand variables, is seldom if ever explained. However, there is a way for a first-time user to zero in on the elasticities of demand variables. I recommend that first-time users use a sensitivity analysis test to determine how the simulation's demand algorithm works. This is a technique that I have developed and used on the simulations that I publish. It can be conducted in the following manner:

A test industry of two or three teams should be created. The user then changes only one decision such as price for Company 1. All decisions for the other firms remain constant. Decisions are then processed. The effect on sales and back orders should be noted. Then price should be changed again with no changes in decisions for the other

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team or teams. In this test price should be changed from four to six times.

Sensitivity analysis should be performed on all demand variables. Decision variables other than price that affect demand include advertising, number of sales representatives, distribution centers, and commission rates. The use of the sensitivity analysis technique has the benefit of having the first-time user learning how to use the software quite well.

5. Have not carefully read and studied the simulation. As an author and publisher, I am surprised at the number of adopters who implement a simulation for classroom use without really having studied the participant's manual or the instructor's manual. Every simulation involves rules and constraints that if not observed will result in very poor decision-making. The first-time user needs to understand these rules and constraints so they can articulate these rules to their students. Also, it is highly important for the user be able to understand and interpret the financial statements generated from the processing of decisions. A careful reading of the participant's manual is essential.

6. Lost or misplaced software and instructor's manual. Sometimes professors lose or misplace software. This problem often happens when the user has moved to a new school or has been given a new computer. The fact that the software has been lost or misplaced is only discovered when the time has come to install the software on a new computer. The user has collected decisions and starts to process decisions only to discover that the software cannot be found. This problem can be avoided by carefully storing software in a place where it is unlikely to be lost or easily found by others.

7. Have not determined or defined the learning goals from using a simulation. Simulations can be used as a stand alone supplement to a course or as a tool to support various course enrichment techniques. Sometimes simulation administrators simply do no more than collect decisions, process decisions, and return results. The assumption is that mere participation in a simulation is a valuable learning experience. This approach however is least likely to attain optimal learning results.

From papers presented at ABSEL, it appears that most users want to use simulations as a tool to facilitate the use of various enrichment techniques. If the objective is to teach students certain decision-making tools, such as budgeting, cash flow statement analysis, and cost-volume-profit analysis, then the user will require students to prepare budgets, make cash flow statements, and perform cost-volume-profit analysis using data generated by the processing of decisions. If the objective is to teach the importance of strategic planning, then the preparation of mission statements and strategic plans may be required. As papers presented at ABSEL clearly reveal, simulations can be used in many ways to achieve different learning goals and objec-

tives. Therefore, the use of a specific simulation without disclosure to students of the learning objectives may result in a less than satisfactory learning experience.

Avoidable problems can be eliminated by following good implementation practices. The suggested implementation steps probably should start at least six months ahead of actual implementation in the classroom. While I know of no study that supports this contention, my experience as a publisher indicates that the actual time devoted to implementation ranges from a few weeks to a month or so immediately before classroom usage. Many first-time uses of a simulation are successful as evident by repeated use of a given simulation. But as a publisher, I know that almost one-half of my adoptions are one-time adoptions.

SUMMARY

Authors and publishers must have a greater awareness of how difficult it is to implement a simulation for the first-time. Each has an obligation to provide more help in reducing the start-up time. Whatever the required minimum startup time is for a simulation, first-time users, in order to avoid potential disasters, must invest the required time. The starting point for implementation should begin at least a semester in advance.

Assuming that first-time users are aware of minimum implementation steps, these users must prepare a time schedule that allows these steps to be completed before actual class room implementation takes place. Also, authors and publishers must invest considerable time in testing the sensitivity of demand creation variables, if this information has not been adequately provided in the user's guide. The testing of one variable at a time holding other variables constant is a minimum requirement. Unquestionably, a good simulation implementation experience must be preceded by following certain steps that should not be short changed. Installing and test-driving simulation software should be done far in advance of actual class room use.

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