

EDUCATIONAL VALUES OF SIMULATION GAMING

J. Ronald Frazer, Clarkson College

A considerable body of literature is developing in recent years that endeavors to measure the effectiveness of simulation gaming. The conclusions reached range from those that consider gaming to be a failure to those that feel it is very good. Typical of the first type is an article by Newhauser [1] in the October 1976 Academy of Management Review titled "Business Games Have Failed." His thesis is based largely on learning of material where he concludes that simulation is not demonstrably superior to other methods of teaching in terms of the material being presented.

Papers by Keys [2] in the 1976 ABSEL proceedings and Scott [3] in the 1977 ABSEL proceedings are typical of those that concentrate on evaluating the learning that takes place in simulation and which generally conclude that simulation is a good learning vehicle but not an unquestionably superior one. Papers by Brenenstuhl and Catalanello [14] and by Sampson and Sotiriou [5] in the 1977 ABSEL proceedings are typical of those that concentrate more on students' perceptions of gaming rather than testing the material learned, and the evaluations generally show simulation in a much more favorable light. An article by Schreier [6] in the 1976 ABSEL proceedings goes further and maintains that we are measuring the wrong things and that testing students on how much they have learned about leadership theory is not a good method of determining if they have learned how to be better leaders in the business world. His advice is "EXPERIENTIAL LEARNING: IF IT FEELS GOOD, DO IT! "

Taking the literature as a whole, one would probably come to the conclusion that simulation is as good as or slightly better than other methods of presenting material. If our only goals were to present material, then it might be difficult to justify the effort and expense that is required to put on a simulation gaming program. However, most people will agree that it is a very narrow view of education that confines it to presenting factual material to be learned. While such a narrow view may be somewhat appropriate for some areas of pure science, the management field represents a sufficient blending of art and science to ensure that an education in management has to be more than a pure learning of facts. In many ways management is more of an art than a science and the combining of factual material with a feeling for application and an ability to work through and with other people is an essential part of management. Thus our goal in management education must be to educate people for management positions in their entirety rather than merely presenting factual material.

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The later papers cited indicate that simulation teaches something more than the material contained in the game and that this something more is particularly relevant to experiences in the real world. Unfortunately, those things that people learn beyond the material of the game tend to be largely unmeasurable. For one thing, one cannot know what the learning experience will be before it happens because it is different for every individual. Even after it happens, the things learned often cannot be expressed in any objective fashion, meaning that it is difficult to prove that learning has taken place. Nevertheless, those of us involved in simulation gaming are continually observing instances in the games of people learning important lessons, often above and beyond the material of the games. This paper details several such incidents in an attempt to illustrate the sort of learning that takes place and to show why evaluation of that learning is so difficult to accomplish.

Some background information on the setting for the incidents described would be helpful in understanding them. The games used are those contained in either Business Decision Simulation [7] for the upper class and graduate levels or Introduction to Business Simulation [8] for the freshman level. Students play a different game for each class, playing the games from start to finish in a two-hour laboratory period. They have the writeups of the games ahead of time, permitting them to spend as much time preparing as they wish, but they are not told what team they will be on until they arrive for the beginning of the game. Thus the first part of each period is devoted to the team members planning what their strategy will be for the game, with the need for a team decision meaning that there will be a leadership struggle of one sort or another at the start of each game. Games are played in a specially designed simulation laboratory where one-way mirrors permit observation of what is going on in the team rooms.

THE TAKE CHARGE STUDENT

George, the take charge student, was a 6'2", 230 pound male with a deep voice who grabbed the decision sheet, the pencil and the seat near the pass-through where decisions were turned in and results returned. His style was to lean forward, loudly and confidently announcing that he knew just what to do and that the team should let him make the decisions if they wanted to win. Even though these were junior students, his aggressive style allowed him to ride over objections and he led his team to last place finishes in the first three games.

In the fourth game, three superior students sat around a corner of the table furthest from George and proceeded to discuss what should be done without paying any attention to him. Others on the team, knowing George's reputation, followed the three students' lead. Before the game was over, George was out

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of his seat and standing behind the three looking over their shoulders, almost pleading to be allowed to participate.

In future games, he spent considerably more time preparing and was far less dogmatic in his approach. What he learned was aptly expressed by another student in a course evaluation: "I learned a lot about persuading people when I had the game down pat and shutting up and listening when I wasn't sure."

THE RESEARCH ENGINEER

Larry, a research engineer at a local plant, took the course as a part-time evening graduate student near the completion of his MBA. He was very bright, had a good background in management, was particularly interested in the games, had a lot of time and access to computer facilities. He spent many hours preparing for each game and came to class with detailed computer printouts analyzing various strategies. His analyses were nearly always valid, his personality and presentations let others readily accept his ideas, and he led his team to victories. It became accepted dogma in the class that if you were on Larry's team you should do what Larry suggested and you would win.

I happened to be watching his team one day as they gathered in their team room just after the others had found out they were on Larry's team. As they sat down they looked expectantly at Larry who said, "Gee, I'm sorry fellows, but I was busy all week and I haven't even read the game." As the team was composed of capable middle-management personnel who I knew were prepared to play the game if they hadn't been on Larry's team, I expected them to accept this and go on with their own analysis. Instead they agreed "That's all right, Larry, you read it now and tell us what to do." Larry did, of course was wrong, and the team came in last.

Afterwards in talking to one of the team members who happened to be manager of labor relations for quite a large plant, he rather shamefacedly admitted that he couldn't believe they had done what they had done. He volunteered that he had certainly learned a valuable lesson about his own propensity to go with preconceived ideas rather than analyzing all the data that was available.

THE NON-VOCAL FRESHMAN

Dave, the non-vocal freshman, was a bright student who had a slight stammer and was obviously ill-at-ease in a group situation. In one of the early games where a production decision was first introduced, one of the more persuasive students on the team offered this analysis: "At the price we are planning to charge we should be able to sell 2500 and we have an inventory of 500 so that means we should produce 3000." Others were

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impressed by this logic but Dave objected. He was totally unable to articulate the reasons for his objections, however, and the team went ahead with the planned strategy.

When the results came back and they had an inventory of 1000 they knew they had been mistaken and turned to Dave to find out what his objections had been. With their undivided attention, he was able to point out the error in logic. In later quarters of play he had new confidence as a leader of the team and participated actively in the discussions. In future games he was considerably more articulate on other teams and became one of the regular leaders.

As another freshman recently said in his course evaluation, “The games were of good use. They really helped me make decisions fluently, and gave me experience on how to make decisions, and not to be afraid to speak out.”

THE PRESIDENTIAL SCHOLAR

John, the presidential scholar, took this course in an experimental section that was restricted to engineering students electing the course. He stood out because he never offered a suggestion about what should be done in the game but spent all his time soliciting opinions from others and organizing the team to make effective team decisions. He was very effective at this and was the highest rated member of the class in the peer ratings we do at the end of the course.

I was very impressed by him and was confident his organizational ability would let him be successful if only he could manage to do well enough in his engineering program to be able to graduate, as he apparently had no ability to analyze at all. Imagine my surprise when we had an all college honorary induction and he was one of those being inducted with a 3.91~ cumulative quality point in Electrical Engineering. I asked him about it and he said that he had lots of opportunities to be analytical in electrical engineering and he looked upon the simulation course as an opportunity to build up his organizational abilities. He was most complimentary about the course and what it did for him. I predict he will be a great success but I would have great difficulty in measuring what he learned with any instrument designed to measure the overall learning of the entire class.

THE PLANT MANAGER

James, the plant manager, took the course in the summer as a part-time graduate student working on an MBA. In his early forties, his personal standards caused him to wear a suit, white shirt, neatly knotted tie and maintain an erect bearing in even the hottest weather. In the same class were a number of full-time graduate students in their early twenties

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who were enjoying a last fling at being a student before graduating and who came to class unshaven in dirty cut-off jeans.

James obviously disapproved of these students and in an early game blew up at one of the younger students for no good reason, told him off in no uncertain terms and effectively destroyed the team for that game. As the course went on, things did get better and at the end of the term he came up to me to say:

1. It was the best course he had ever taken.
2. The younger students were really fine young men.
3. “Thank goodness I lost my head in a spot where it didn’t cost me any money.”

THE GIRL WHO RAISED HER VOICE

Rose, the girl who raised her voice, early in the course experienced many of the problems that females run into in a predominantly male environment. Although very bright and spending considerable time preparing, her suggestions were made somewhat tentatively and were generally passed over by the team in favor of strategies recommended more aggressively by others.

I happened to be watching the day she was offering a suggestion she was sure was right only to find the male on her left raise his voice and drown her out by saying, “NO, I THINK WE SHOULD DO JUST THE OPPOSITE.” Rose plucked up her courage and raised her voice to fully equal his, explaining to everyone why her strategy was right. The group was impressed by both her logic and her conviction, followed her suggestion and won the game. From that time on, she participated fully in all the games and was a leader whose ideas were always carefully considered.

THE OLDER STUDENT

Ed, the older student, had several years of business experience before deciding that he should return to college and get a degree in his mid-twenties. Enrolled in the simulation course, he felt little rapport with the rest of the students and did not take a particularly active role for the first few games. Acquiring a real interest in the games, however, he spent several hours working out a detailed strategy for the fourth game. On being assigned to a team, Ed immediately began telling his teammates exactly what decisions should be made. Even though his analysis was right, his autocratic manner and complete lack of interest in other’s ideas caused the others to reject his recommendations and go with an entirely different strategy. Ed was so upset at this that he got up and left, went outside and walked the streets for an hour.

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Ed came back at the end of the period and came in to see me. He apologized for leaving, and then said, "That was the trouble when I was in business. People wouldn't listen to me there either." Just saying this made him realize the nature of his problem and over the balance of the term he really developed in his abilities to work with the other students, gradually becoming a well-respected member of the class.

THE SMALL GIRL

Darla, the small girl, was enrolled in the freshman course in a class with only five girls out of a total of 26 students. Although confident of her own ability to analyze the games, she did not have the size or voice to ensure her ideas would be listened to by the others. Nevertheless, she seemed to be able to lead the teams she was on. I watched with interest the day she and another female student were seated at a corner of the table while three male students were standing around the opposite corner, looking at the results sheet for the first quarter and discussing among them what the next decision should be, effectively cutting the females out.

Darla got up from her place and quietly walked around the table and slipped into the middle of the three to look at the result sheet. She then stayed right there until someone asked her opinion and the team ended up doing what she said. She stood there for the balance of the game and led the team to a good finish, even though another team just beat them out for first place.

At the end of the term Dana's peer rating evaluations were easily as good as any I have ever had. She managed to be a leader both through her ability and a sense of physical presence that is most uncommon, particularly for a freshman. In this case she may not have learned it in simulation, but she certainly had the opportunity to further develop the talent she had.

The incidents cited are chosen particularly as indicative of the sort of learning that takes place that is not related to the material of the game. To this sort of learning must be added the sort that calls for applying tools of analysis. Anyone who has used a game calling for drawing a conclusion from a set of numbers will recognize that the typical course in statistical inference does little to prepare the student for using the theory and that students learn far more about analysis of data in a game setting than they ever can from the typical theory derivation, formula substitution type course.

The sort of learning described here takes place all the time in simulation gaming and has no real counterpart in traditional teaching environments. While what is learned is hard

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to measure, it is what makes simulation the effective learning device it is and serves to explain the enthusiasm that those involved in the field have for it.

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