

## STUDENT EXPECTATIONS OF SIMULATIONS

Robert E. Ledman  
Morehouse College  
rledman@morehouse.edu

### ABSTRACT

*This paper explores the expectations of students who are assigned a simulation as part of a management course. The assessment of expectations was conducted immediately after introducing the simulation and before the students actually made the first decision required by the simulation. The results suggest that students have very high expectations for the simulation's ability to challenge them, improve their learning, improve their enjoyment of the learning, and high expectations for learning from the simulation.*

### INTRODUCTION

The use of simulations in business courses has been around for some time. There is a sizable body of research focused on the effectiveness of simulations at improving learning. Wolfe (1990) reviewed 300 articles on machine or computer based simulations and there have been many articles since then. In his review Wolfe concludes that business games may or may not reward the abilities of individuals depending on personality types when compared to more traditional approaches. Individuals with a need for power or abasement may experience more positive feelings and thus greater learning. Wolfe also notes there is a risk in equating learning with performance since that approach overlooks those who learn from incorrect actions. Numerous studies have examined the potential for simulations and games to improve learning.

Wolfe (1978) studied the effects of complexity on learning. He found that plateaus occur and self-assessed learning peaked early in less complex games. He therefore concludes that the ideal length for a simulation may depend on the complexity. In his study of three levels of game based decisions per round he found that more complex games led to greater learning. Wolfe (1975) also studied the effectiveness of business games compared to the case method. He found that the two methods were equally effective for teaching facts but that games were superior for developing conceptual knowledge. Keys and Bell (1977) replicating the earlier study of Wolfe with a different and simpler simulation found the same results. Wolfe and Roberts (1965-86) studied the relationship between grade weight and learning in simulations and found no relationship. Students in that study expressed a sense of equity between the time required and the amount of course grade accounted for by the simulation. Van Over (1993)

examined the attitudes of executives about simulations as effective learning methods. The questionnaire asked executives to assess the usefulness of the simulation and whether they learned from it. The results supported both premises.

In an effort to learn whether the realism of the simulation plays an important role in learning Hays and Singer (1989) found that providing refined feedback could enhance learning even if the level of realism is reduced. Patton, Davis and Govahi (1998) compared three classroom approaches. They compared mega-lectures, laboratory sessions and experiential exercises. Their regression analysis found that experiential exercises should not be thought of as interchangeable with simulations. Hackleman and Wendel (1979) compared test performance of students in lecture discussion classes with students in classes that included simulations to supplement the lecture and discussions. They found that computer simulations increased the quality of the learning by creating a holistic, synergistic learning. In an effort to assess the long term effects of simulations and their perceived value Hemmasi and Graf (1991) used a questionnaire sent to alumni up to five years after graduation. The focus of their study was the value of the simulations in their business courses. They found that practitioners felt that simulations had a greater overall utility as pedagogical tools. The practitioners responded that simulations were particularly effective for skills like teamwork, problem solving and planning. McLaughlin and Bryant (1987) also focused on the strengths of simulations as pedagogical techniques. They found from student critiques that simulations consistently offer the benefits of feedback and responsibility, integration of content and group decision-making.

The research does not universally support the premise that simulations increase learning. Klabbers (1994) concluded that three decades of literature do not clarify the effectiveness of simulations. Anderson and Lawton (1997) echo a similar conclusion when they note that there is little hard evidence that simulations improve learning. They suggest that the activities selected by the game administrator will influence the learning. Anderson and Lawton conclude that clearly specified outcomes are needed to show the effectiveness of simulations and those outcomes are not typically present in the existing studies. McLaughlin and Bryant (1987) found that simulations have disadvantages. They conclude that simulations lack validity; they are not the "real world."

Some researchers have focused on how to maximize the benefits of simulations. Gosenpud, Miessing and Milton

## Developments in Business Simulations and Experiential Learning, Volume 32, 2005

(1984) found that better organized teams performed better and Gosenpud and Wolfe (1988) found that those who follow a strategic plan do better. In a similar vein Greenlaw and Wyman (1973) found that post-game interest was strongly correlated to team performance, attitudes, and preparation. Those findings suggest that pre-game actions of the instructor to organize the teams, properly prepare them, and emphasize the importance of having a strategy will lead to greater success. This is consistent with Wolfe's (1990) suggestion that simulation games require more labor-intensive effort on the part of the faculty and the students.

There are aspects of the use of simulations that have not been studied. Wolfe (1990) identifies three areas in need of study. Those areas are the pre-game attitudes of willingness to learn and participate, the effects of game/course integration, and instructor motivation for using games. Another topic that has not yet been explored is the expectations of students. Do students expect to actually learn from simulations or do they perceive them as a "game" or even a nuisance that takes up their time? This study attempts to provide some indication of student expectations of simulations used in the context of a course.

### METHOD

Students in a principles of management class are assigned a semester long simulation as part of the course. The simulation requires them to make numerous business decisions as they "manage" a small manufacturing business. Student teams compete to make a profit with other teams in the same class. Decisions are made weekly and processed all at once by the instructor. Each weekly decision is meant to represent an operating quarter.

After introducing the simulation with an explanation of the information given above the students were given a questionnaire asking them to rate the degree to which they expected the simulation to provide certain pedagogical characteristics and meet specified learning outcomes. The pedagogical characteristics were whether the simulation would be challenging, improve their learning compared to other methods, cause them to enjoy learning more, and help them learn career skills. The learning outcomes specified were developed from the instructor's goals and the literature and included: application of concepts, problem solving, teamwork, integration of business subjects, analytical skills, critical thinking, decision making, strategic thinking, and communication. Seventy-four students completed the questionnaire.

### RESULTS

The results show that students have very high expectations for the simulation. The average level of agreement with every pedagogical element and learning outcome was less than two on a five-point scale in which one was strongly agree. Students were also asked if they had ever participated in a simulation before. The results

were not significantly different for those students who had participated in simulations before (19 of 74) and those who had not. One of the students who had previously participated in simulations made a note on the questionnaire that he thought simulations were the most effective way to learn.

### CONCLUSIONS AND DISCUSSION

The results of this study clearly demonstrate that students expect simulations to be effective learning devices while being challenging and enjoyable. Students also have high expectations that they will learn from the simulation. Whether those expectations can be generalized to other simulations needs to be explored. The simulation in this study is quite complex, especially for beginning business students. Simpler simulations may be perceived differently and result in lower expectations. Further study will also be needed to determine if student expectations are too high and thus are not met.

While this study does not provide definitive evidence that students have tremendous expectations from simulations, it does provide a starting point. To date the overwhelming, almost singular, focus of the research into simulations as pedagogical and learning tools has been on whether they enhance student learning. That question has proven difficult to answer with certainty because of the difficulties inherent in trying to measure learning. With further studies we may conclusively show that students expect to learn from simulations and find them to be stimulating and challenging ways to learn.

### REFERENCES

- Anderson, Phillip and Lawton, Leigh. 1997. Demonstrating the Learning Effectiveness of Simulations: Where We Are and Where We Need to Go. *Developments in Business Simulation and Experiential Learning*, Vol. 24:68-73.
- Gosenpud, Jerry, Miessing, Paul, and Milton, Charles. 1984. A Research Study on the Strategic Decisions in a Business Simulation. *Developments in Business Simulation and Experiential Learning*, Vol. 11:161-165.
- Gosenpud, Jerry and Wolfe, Joseph. 1988. Strategy Design, Process and Implementation in a Stable/Complex Environment: An Exploratory Study. *Developments in Business Simulation and Experiential Learning*, Vol. 15:147-152.
- Greenlaw, Paul and Wyman, F. Paul. 1973. The Teaching Effectiveness of Games in Collegiate Business Courses. *Simulation and Gaming*, 4:259-293.
- Hackleman, Edwin and Wendel, Richard. 1979. The Business Simulation—an Effective Learning Instrument. *Journal of Experiential Learning and Simulation*, 1: 203-209.

## Developments in Business Simulations and Experiential Learning, Volume 32, 2005

- Hays, R. T. and Singer, M.J. 1989. *Simulation Fidelity in Training System Design: Bridging the Gap Between Reality and Training*. New York: Springer-Verlag.
- Hemmasi, Masoud and Graf, Lee. 1991. Educational Effectiveness of Business Simulation Gaming: A Comparative Study of Student and Practitioner Perspectives. *Developments in Business Simulation and Experiential Learning*, Vol. 18:53-56.
- Keys, Bernard and Bell, Robert. 1977. A Comparative Evaluation of the Management of Learning Grid Applied to the Business Policy Learning Environment. *Journal of Management*, 3: 33-39.
- Klabbers, J. H. G. 1994. The 25<sup>th</sup> Anniversary of ISAGA: The Orchestration of Organized Complexity. *Simulation and Gaming*, 25:502-513.
- McLaughlin, Frank and Bryant, Glenn. 1987. A Comparison of Student Perceptions With Accepted Expectations for Business Simulations. *Developments in Business Simulation and Experiential Learning*, Vol. 14:135-140.
- Patton, Gregory, Davis, Daniel, and Govahi, Gita. 1998. Predictive Model of Learning: Participant Satisfaction of Experiential Exercises in Business Education. *Developments in Business Simulation and Experiential Learning*, Vol. 25:69-75.
- Van Over, David. 1993. Evaluation of a Simulation Game as an Educational Tool for Utility Professionals. *Developments in Business Simulation and Experiential Learning*, Vol. 20:140.
- Wolfe, Joseph. 1975. A Comparative Evaluation of Experiential Approach as a Business Policy Learning Environment. *Academy of Management Journal*, 18:442-452.
- Wolfe, Joseph. 1978 The Effects of Game Complexity on the Acquisition of Business Policy Knowledge. *Decision Sciences*, 9:143-155.
- Wolfe, Joseph. 1990 The Evaluation of Computer-Based Business Games: Methodology, Findings, and Future Needs. *Guide to Business Gaming and Experiential Learning*, edited by James Gentry. Association for Business Simulation and Experiential Learning, 279-300.
- Wolfe, Joseph and Roberts, Richard. 1985-86. The Effects of Different Grade Weights on Business Game Learning Levels. *Journal of Educational Technology Systems*, 14:307-316.