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EVALUATION OF A SIMULATION GAME AS AN EDUCATION TOOL FOR UTILITY PROFESSIONALS

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ABSTRACT

This paper discusses the use of simulation gaming for public utility executives. A brief description of a utility industry and a professional development seminar are provided. The user's perceptions of the effectiveness of gaming and the use of a utility-based game are evaluated. Results show that gaming is a viable tool for professional development. Using a game in the utility industry brought about mixed results. It is seen as an effective approach when the benefits from experience are not too great.

INTRODUCTION

Computer simulation games have been used in many situations to enhance the learning process. Games are typically used in the classroom as part of a K-12 or college level course. While the instructional effectiveness of their use is not always superior to more conventional classroom methods, their use is generally accepted by educators. Most of the studies which discuss the effectiveness of simulation gaming do so in the context of the traditional classroom environment. This study looks at the effectiveness of simulation games for use by executives in a professional development course.

This project asked two specific research questions. The first questioned the effectiveness of using a game with executives. The second evaluated opinions of executives about playing a game based on their industry. A census sample of participants at a professional development seminar were surveyed. The participants were all executives in electric public utilities. However, the insights gained in this study have application outside this small domain.

For the past several years, students attending the Public Utilities Executive Course have played The Competition Game, which is a PC-based simulation which helps players apply tools and concepts learned in lectures in a simulation of a competitive, international market. Each player is part of a team of senior decision-makers for an organization, which manufactures and markets compact disk players. Each team competes against all other teams in a global market.

They purpose of the game is to provide some experiential support for the classroom learning. The participants have little previous experience with the concepts of strategic management in a competitive market place. This game provides 2 important outcomes. The first is familiarization with the concepts listed above. The second is experience as a member of a management team. This experience has the further benefit of providing the first level of a professional network.

Questionnaire Description

A questionnaire was used to gain some insights into the utility executives' attitudes about simulation games and electric utilities. The questionnaire asked 6 questions concerning simulation games and 4 questions asked about the general play of games. The last questions were open ended with some "seed" answers supplied. The intent of these questions was to establish the variables used in the decision process of the players and appropriate performance measures by which play could be evaluated.

Results and Discussion

The participants supported the usefulness of a simulation game in the course. Similar attitudes were expressed about playing the game as a team member rather than individually. In contrast, no clear message was evident concerning the duration of the game. The remaining 3 questions asked the appropriateness of using a simulation game based on an electric utility and whether decisions should be based on analysis of the data provided or on past experience and knowledge of the industry. These questions divided the participants into 2 distinct groups. One group did not want a game based on an electric utility, and they thought that decisions should be based on the data provided and not on industry experience. The other group supported both the use of a utility game and industry experience. It appears that those with actual industry experience would have an unfair advantage in a game based on electrical utilities or experienced based decision-making. It appears as if one group has operational experience and the other group has been involved in support functions.

The next question asked what decision variables were used. While a great many different variables were used, the most commonly reported were marketing information, capacity, competitor analysis, and production costs. The next set of questions asked the appropriateness of including 18 topics in an electrical utility game. Those with strong support were competition, cost management/containment, strategic planning, and pricing/rate scheduling. Those considered unnecessary were international markets, international producers, and renewable fuels.

Conclusion

This paper originally asked two questions. The first of these addressed the perceived effectiveness of simulation gaming in an executive development course. The data indicate that executives think the game is beneficial and in fact demonstrate that they learned something about the concepts presented to them in the class. The second point of the research was to evaluate the perceptions of using a game, which is based on the industry in which the executives are employed. The results to this inquiry were very interesting. The executives see the potential benefits of playing a game in their own area, but are concerned that it can be a fair game. That is, they do not those with more experience to have an advantage in the game.

These findings are important to anyone using a game, which simulates a familiar area to the participants. While there are some pedagogical reasons for using a familiar arena, the game designers must be careful to minimize the benefits of experience. This apparent paradox needs to be investigated in future research projects.