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COMPUTER SIMULATED COMPETITION: AN OPTION TO TEAM PLAY IN MANAGEMENT SIMULATION

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ABSTRACT

In this demonstration, the authors of MANSYM IV, published by John Wiley & Sons present a solution to the basic mechanical problem students face in complex simulation environments. Integrated computer simulated competition permits students (or learning faculty) to compete against several realistic competitive teams whose input is generated by the computer. This permits a quick and easy way to practice the operational aspects of the MANSYM simulation so that players ultimately will have more time available for the more important strategic dimensions and objectives of executive management and business policy simulation. Perhaps the most important pedagogical potential of the enhancement lies in individual assessment. In addition to self-play and individual assessment, several alternative application scenarios are discussed, including off-campus programs, remote broadcast, telecourses, and others -

INTRODUCTION AND DISCUSSION

Most business policy oriented games have followed a pattern in which student teams compete with each other over several simulated periods of time. Simpler games have pitted a student against the computer. Students sometimes complain that by the time they understand the operations of a complex game, the experience is over. Some simulations, including MANSYM, have previously taken steps to provide decision support systems which include pro forms statement generators and forecasting templates. Nevertheless, solutions to the basic mechanical problem have not previously been integrated in complex simulation environments. Students have needed a quick and easy way to practice the operational aspects of simulations so that they may ultimately have more time available for strategic thinking, a key objective in the business policy or strategic management course today.

Integrated computer simulated competition is a concept which adds a whole new dimension to computerized simulation. Previously individuals could attempt to beat the computer in simplistic simulations such as 'Lemonade Stand,' or team play provided competition through which student team decisions were manipulated within complex economic environments which modeled a particular industry or industries. Integrative computer simulated competition permits individual play in complex environments in which historical patterns of competition are automatically adjusted for variation in input of the person playing the game.

This concept is potentially extremely valuable to both students and game administrators. Students may overcome "computer or game anxiety" by having a greater degree of confidence in the actual team competition based on pre-play

experimentation and experience gained in a computer simulated environment.

For game administrators, the benefits are pronounced. The single most valuable potential of the game is for individual assessment of student performance. Some students complain that in team environments they lack control over other team members who fail to meet team disposed assignments or who are uncooperative and contribute to team performance that is, in their opinion, lower than what their individual performance might otherwise be. Computer simulated competition provides a method in which individuals could still play a highly competitive game but in which the results are strictly dependent on their own actions and decisions.

The option provides a short cut to learning the operational aspects of the game so that students have more time to focus on strategic thinking. Class time spent on operational aspects of the game decreases. There are fewer questions on operational aspects of the game during team play because that level of learning has been surpassed. The general level of learning increases, while frustration and anxiety decrease. The focus of class discussion moves from operational to strategic dimensions, and the realism of the game is increased in the students' opinion. The benefits extend to students and administrators in several alternative application scenarios.

In addition to the self-play option exercised prior to actual team play, computer simulated environments may be useful in off-campus programs where enrollments may be lower than typical on campus. Evening and off-campus students often have significant difficulties to overcome in meeting as teams, and this option may either ameliorate such logistical problems through similar advantages to pre-play, or permit individual competition as a course requirement.

The computer simulated environments may also be useful in the case of the student who suffers an accident or problem resulting in a course grade of incomplete. Such students would probably not have the advantage of experiencing a strategic management simulation without the self-play option in computer simulated competition. With this option, they may complete course requirements without having to sit through the class again, or without the requirement being substituted with an extra paper or other substitute requirement.

Integrated computer simulated competition may also be useful for telecourses, in which instruction is broadcast to remote classrooms via satellite, airwaves, microwave, fixed station, or other technology. In these scenarios, direct interaction with the course instructor may or may not be available. The game may be provided to the student with other course materials such as text, played at home, work,

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or in a remote classroom site, and the disk returned by courier or mail service for evaluation by the Instructor. Simulations have not previously been practical for such environments.

HOW IT WORKS

The software option, a new addition to MANSYM IV, builds in three computer generated decisions, and the student playing the game inputs the fourth decision. The first computer generated decision set emphasizes a high quality product, with enhanced raw materials and extended durability. Naturally, the quality product is accompanied with a premium price strategy, with appropriate promotional support. A second decision set emulates the "lean and mean" competitor, with an aggressive low price strategy, and plain, unenhanced products. Overheads are managed for over-all cost minimization. The third computer generated decision set is that of the market middler or follower. This decision set is generated by the computer to essentially be the average position in the market among the four competitive firms. If the solo player adopts a strategy similar to the first, high quality firm, the third firm moves to a parallel but slightly lower profile. On the other hand, if the solo player adopts a strategy similar to the low price-low quality firm number two, the third firm will gravitate lower as well.

SUMMARY AND CONCLUSIONS

The newest program enhancements in MANSYM IV represent a significant advancement in business simulation. Computer simulated competition techniques offer several key benefits to students and game administrators. Self-play prior to the start of live team competition improves confidence and increases focus on strategic issues during regular play. Individual assessment, rather than team assessment, is key potential benefit. Support for small off-campus programs is now an option. Incomplete grades may be made up for regular courses when situations necessitate special consideration. The program simulates three competitors: one high price, high quality, a second which is low price and efficient, and a third which is a market middler. A student player inputs a fourth decision set. Programs and technical support are available from the authors.

REFERENCE

Schellenberger, Robert E. and Lance A. Masters. (1986), *MANSYM IV: A Dynamic Management Simulator with Decision Support System*. New York: John Wiley and Sons,