

# THE OPTIMAL TIMING FOR INTRODUCING BUSINESS SIMULATIONS

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## ABSTRACT

*While every simulation user must decide when during the course of the school term he or she will introduce the simulation, virtually no literature exists to guide simulation users. We suggest factors likely to affect the optimal timing for introducing a simulation. In addition, we present the results of a case in which students engaged in a simulation very early in the semester — before they were exposed to any of the concepts of the discipline. We conclude that the early introduction of simulations can be an effective tool for increasing student motivation and openness to learning concepts of the course.*

## Introduction

All users of business simulations face the question of when during the course of a school term they should start their simulation. Some instructors start the simulation very early in the term, others hold off until after they have covered certain topics. This paper explores the issues involved in determining the optimal timing for introducing a business simulation.

Although determining a schedule for introducing a simulation is a central requirement for every simulation user, the gaming literature is surprisingly silent on the subject. In fact, our review of the literature failed to turn up even a single article devoted to discussing the optimal timing for introducing a simulation.

As a result of our decision to alter our approach to teaching principles of marketing, we had to address the timing issue. This paper discusses the factors that should influence the timing and describes the experience we had with introducing the game very early in the school term. We hope that this paper will be useful to other simulation users as they consider when they should start their simulations.

## Factors affect the timing for introducing a simulation

There are a number of factors that should be considered when determining the timing of the introduction of a simulation exercise. We will discuss each of the following factors in turn.

1. The scope of the simulation;
2. The level of preparation of the students enrolled in the course in which the game is used;
3. The instructor's objective for using the simulation.

**Scope of the simulation.** Some computer simulations are very limited in scope, dealing only with one facet of a discipline. These simulations are designed to introduce or reinforce some specific aspect of the course. For example, a simulation designed to demonstrate EOQ (Economic Order Quantity) is different in both scope and scale from an operations management simulation. Other simulations, such as a total enterprise simulation, are designed to cover the full range of issues in the discipline.

Limited-scope simulations are unlikely to raise the timing issues of broader, more comprehensive, simulations. Most instructors will cover the small-scale simulation when they cover the specific topic to which it is tied – and then run the simulation for only a short time. Broad-scale games involve more interesting timing decisions.

**Student level of preparation.** Some instructors use simulations in introductory courses (e. g., Principles of Marketing) while others employ them in upper-level courses (e. g., Business Strategy). The nature of the course will almost certainly be related closely to the knowledge base of the students enrolled in the course. For example, a student entering an introductory marketing or entrepreneurship course is unlikely to be informed about the models and concepts of the discipline. On the other hand, students entering a capstone course in marketing or business strategy can be assumed to have a basic knowledge of the subjects dealt with in the simulation. Most instructors of capstone courses assume that students enter their course with an

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understanding of the fundamentals of the discipline since they have been exposed to these concepts in previous courses. Consequently, most instructors tend to emphasize application of the concepts rather than the introduction of them.

The timing of the simulation exercise in a course populated with seasoned students is less of an issue than that for a course comprised of neophytes to the discipline. Regardless of when the simulation is introduced in a capstone course, students should have a framework that allows them to apply the principles of the discipline to the problems they face. We suspect that most instructors introduce the simulation relatively early in the school term because students enter the course with much of what they need to understand the game and to compete effectively. However, as mentioned earlier, we could find no ABSEL literature dealing with timing, so we have no formal support for this assumption.

Students entering introductory courses are an entirely different matter. Most will be unfamiliar with the principles of the discipline and will lack the framework they need to make informed decisions. Their view of the course concepts (if they even know what the concepts are) will be based upon prior personal experiences and conventional wisdom. For example, novice students' views of marketing concepts are likely to be strongly influenced by the marketing practices they observed as they were growing up, media use of marketing terminology, and personal experience with certain facets of the discipline. Their perceptions, values, and beliefs on the subject will affect how they approach learning course concepts. Consequently, these introductory courses present more interesting timing issues for simulation users precisely because students do not bring a framework for understanding and application into the course.

**Objectives of using the simulation.** Researchers have identified many possible objectives for using a simulation (Gentry, et. al., 1979, Hemmasi, M. and L.A. Graf, 1992; Keys, B. and J. Wolfe, 1990; Miles, W.G., Jr., et. al., 1986; Parasuraman, A., 1981). Objectives include the introduction to new concepts, the opportunity to practice applying those concepts, and learning how to analyze complex and competing information in a business context. Instructors using simulation exercises often attempt to achieve multiple intellectual and behavioral objectives (Anderson and Lawton, 1997). That is, they are not seeking a simple application of the course concepts; they also want the students to see the relationship between the application of concepts, analysis, and performance (Burns, et.al., 1990). The set of outcomes that an instructor desires for his or her course is likely to play a major role in the timing of the simulation.

### Our past practice and experience

Until this semester, we always have introduced the simulation in our principles of marketing course about

halfway through the term. Our rationale for the late introduction was that we first needed to develop the concepts of the discipline before we could expect the students to perform adequately. We feared that without proper theoretical underpinnings students would be overwhelmed by the complexity of the decisions and, lacking a foundation in the discipline, would resort to a "seat-of-the-pants" decision-making approach. Our primary objectives for using the simulation included: 1) providing students with an opportunity to apply the principles they were encountering in the course; and 2) engaging students in an activity that focused their attention on the relationship between marketing and the other functions of business (accounting, production, etc.). Before even starting the first period of play of the simulation, we required all students to submit reasonably detailed marketing plans. Not only did we instruct them in the operation of the simulation, we made certain that they were exposed to the main concepts they would need to employ to compete successfully. Everything that we did to prepare students for the simulation was consistent with the objective of encouraging them to take principles gleaned from the course and apply them in the simulation. While our anecdotal information suggests that the way we administered our simulation is similar to that of most other users, the lack of literature on the timing of the introduction of simulations prevents us from making a definitive statement.

Our experience with this approach has been good. Most students in past semesters have responded favorably to the simulation exercise. For many of the students, playing the simulation was the most positive aspect of the course and, for some it was the highlight of their business education. This is consistent with what has been reported in the literature. Miles, et.al. (1986), Washbush and Gosenpud (1991), and Wolfe (1985, 1990) all reported students preferred simulations over other pedagogies and perceived them as best for skill acquisition. However, we have been disappointed semester after semester that some students – often including those who had a very positive reaction to the simulation – failed to accomplish our learning objectives for the simulation. Some students seem to miss the connection between the text, classroom discussion, and the simulation. It is disappointing to see cases in which students can answer questions on tests, yet fail to apply their knowledge to the simulation. It is equally upsetting to see students who are very enthusiastic about the simulation yet fail to become engaged in the classroom. We are disappointed when students show little interest in topics that are highly relevant to the simulation.

### This semester's protocol

This semester we introduced *Merlin: A Marketing Simulation*, a new marketing game developed by the authors, in the second week of a fourteen-week semester. *Merlin* is a moderately complex simulation requiring students to select marketing mixes for two products in three

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territories. The only topics covered prior to the start of the simulation were those that involved macro-issues in marketing. No topics concerning the job of the marketing manager or approaches to decision-making were introduced. Nor were students required to submit a marketing plan for their company. They were simply put into groups and thrown into the game without preparation.

Students played the “solo” version of *Merlin* in which each student team competed against eleven computer-managed companies; they did not compete against each other. They were allowed to restart the simulation as often as they wished. So, if they were not satisfied with their performance, they could quit the simulation and begin a new round as often as they liked until they achieved results they could live with. Each team of four students was required to run their company for one year (four decision sets). When a team completed a set of four decisions that satisfied them, they submitted the results to the instructor along with a three-page explanation of how they made their decisions. The incentive offered for performance was that the members of the best performing team received automatic A’s on a test of the *Merlin* rules and environment – a very small portion of the total course grade.

The objective of this exercise was vastly different from that of previous semesters. Since students had been exposed to none of the marketing literature, they had no framework for decision-making and no chance of applying the principles of marketing. Our objective was this semester was:

4. To provide students with evidence that they lack knowledge of tools required of an effective marketing manager.
5. To motivate students to acquire the tools they need to improve their performance.

As instructors, we often take for granted that students recognize that they have much to learn about our discipline. In fact, in many cases, especially for a subject like marketing where students have experience as consumers, our belief is likely to be erroneous. As a result of their experiences with business, many students enter introductory courses believing that they already know much of what there is to know about the discipline. There is probably not a teacher of basic management or marketing courses who has not heard a student comment that “management and marketing are just common sense”. Students who operate under the assumption that they already have an adequate grasp of the subject are unlikely to be productive learners. Those students who accept that they lack knowledge and see potential benefits from acquiring that knowledge are likely to be far more motivated and involved in the learning process.

### Results of the early introduction of the simulation

Examining the explanations students provided as to how they made their decisions was, as expected, a difficult

task. Since the only instructions for the paper were to “describe how you made your decisions”, students had considerable latitude as to what they wrote. Despite the difficulties, one outcome was abundantly clear – our expectation that students would lack a framework for effective decision-making was uniformly supported. The confusion admitted by the students, combined with the sometimes contradictory nature of their statements (e. g., “we raised price to stimulate increased sales”), reflects the absence of a decision-making framework and a lack of comprehension regarding course concepts. There were a couple of groups making statements such as, “We realized when we started the simulation ... that we needed a general approach to what we wanted to accomplish.” But even the papers for these groups were largely devoid of a coherent plan. There was much evidence of a lot of trial and error (“We believed that by running the program numerous times we would achieve the perfect marketing mix...”) and virtually no indication of drawing on marketing principles to arrive at well-reasoned options. Beyond the evidence of considerable trial and error, the focus of the students was on reacting to the situation described in the *Merlin* manual (for example, several teams decided to charge a lower price in the least affluent territory).

We were relieved and pleased with student reaction to the exercise. Our major source of apprehension was that students would be overwhelmed by the simulation and frustrated as they confronted a situation for which they were not prepared. Our misgivings were unwarranted. Student response to the game was very positive. This was reflected in the students’ eagerness to find out how their team fared relative to the other teams in the class and in classroom comments about their enjoyment of the simulation exercise.

Although the students enjoyed the simulation, they asked questions that demonstrated that the early introduction of the simulation accomplished our objectives. Several teams expressed concern about how they were supposed to know what to do. As one student turned in the simulation assignment, he asked a very telling question – “So, what are the tricks?” He was very eager to find out how he could improve his performance. The combination of questions asked during and after the play of the simulation convinced us that the early introduction of the simulation resulted in many students recognizing that they lacked the knowledge and skills of a marketer and that they felt motivated to learn and to develop their skills so that they could compete more effectively in the future. Quite a few students clearly recognized that they lacked the tools needed to make informed decisions. Their desire to know what they could do to improve their performance was especially satisfying.

A couple of other benefits resulted from the early introduction of the simulation: (1) Most teams spent considerable time experimenting. This behavior helped them develop familiarity with the operation of the game. This will yield benefits when the students play the simulation directly against their classmates later in the semester. They will not be overwhelmed by the details of operating the simulation

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and will be in a better position to focus on applying marketing concepts. (2) Some teams learned valuable lessons from participating in the abbreviated version of the simulation that will help them when they compete “for real”. For example, a couple of teams learned that failing to purchase sales forecasts and information on the actions of their competitors was unwise.

### Discussion and conclusions

While we have used simulations for many years and have always felt that they have been good learning tools, we have always used them as a device to encourage students to apply the knowledge and skills of the discipline – and we have made certain that they have been exposed to this knowledge before they began the game. Prior to this semester, we have never used the simulation to set the stage for a more productive learning environment. This is the first time that we have used the simulation to provide students with evidence that they lacked knowledge and to motivate students to acquire knowledge to improve their future performance.

Our decision to introduce the simulation before preparing the students appears to have been successful. It was obvious from student feedback that most students recognized that they lacked the tools needed to operate as effective marketing managers. It also was clear than many students came out of the simulation with a desire to learn about marketing so that they can compete more effectively when they participate in future play. As a result of their recognition that they don’t know-it-all and of their focus on improving their performance, students showed greater interest in classroom discussions of the theory and practice of marketing.

### Limitations

Our ability to make comparative statements concerning our timing for the use of simulations is hindered by the lack of published information available on the timing other use for introducing their simulations. It would be desirable to have information available as to when instructors begin the play of their simulations and what their objectives are.

The results reported here represent one experience with one simulation in one principles of marketing course. As pointed out earlier, we can logically expect that the experience in a capstone course will differ from that in an introductory-level course because of the differing level of preparation of students entering the course. The complexity of the simulation also is likely to influence the success of a simulation introduced early in the course. An extremely complex simulation introduced to students who lack familiarity with a discipline may prove disastrous. More replications of the experience under a variety of settings is necessary before we can draw a general conclusion that introducing a simulation early in a school term is solid pedagogy.

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