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STRATEGIC PLANNING AND ORGANIZATIONAL PERFORMANCE IN A BUSINESS SIMULATION: An Empirical Study

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ABSTRACT

Many business professors stress the need for Rood planning in business endeavors. In the business policy course, strategic planning is one of the main topics. This study presents the results of matching the extent of planning in a major business policy game and the performance (results) of this effort. The difference between this study and earlier studies is that in this study teams had the choice as to the extent of planning they would do.

INTRODUCTION

Most, if not all, business policy texts champion the benefits of planning. Lang and Dittrich believe that strategy formulation represents the highest level of (business policy) course accomplishment and student development [1]. The Bloom educational taxonomy model lists synthesis as the 5th (of 6) highest educational objective; he further defines synthesis as being able to establish "...a plan or proposed set of operations..." [2]. The classic studies on Planning vs Performance established a positive relationship between the extent of planning and organizational performance [3, 4, 5, 6]. The opposing viewpoint has also been documented [7, 8]. In the simulation environment, Hornaday and Curran reversed the conclusions of an earlier study and concluded that teams that planned achieved significantly higher earnings, stock prices, earnings per share, and returns on investment than did teams who did not prepare a long range plan. [9] To that study, the researchers assigned which teams would do research and which would not. The writer wanted to observe how teams would perform after being given the option of formal strategic planning. Thus, some teams did little formal planning while others did very extensive formal planning.

METHOD

The simulation used was AIRLINE: A Strategic Management Simulation developed by Smith and Golden [10]. AIRLINE is a complex simulation of the air transportation industry, and one of few games that simulate a service rather than a manufacturing firm. The simulation is based on the rapid growth of commuter/regional airlines during the deregulation era of 1980 to the present. Participants make up to 84 decisions each period. A firm can operate in from one to 52 markets. Firms in the experiment operated in an industry of from 8 to 12 firms. The simulation automatically adjusts the market demand according to the number of firms playing.

The sample included students in five sections of Business Policy at a large southern university. The 114 participants were grouped into 30 teams consisting of three or four persons each. The number of decision periods ranged from nine to eleven. There were no practice or start up sessions. The team's simulation grade constitutes 50% of the student's semester grade. However not all of the grade is based on quantitative performance, only 30% of the 502 (or 152 of the

course grade).

The hypothesis to be tested:

Performance of student teams that develop formal strategic plans will be higher than those who do little or no strategic planning.

TYPE OF PLANNING REQUIRED

Teams were given models of the strategic planning process, an example of a strategic plan format, and current planning articles.[11,12] Each team was told to submit a formal strategic plan but that the extent of planning was left up to the discretion of the individual team. Thus, the team had complete control over how much planning it would do.

The strategic plan was submitted within one week of the beginning of simulation play but teams were instructed that the plan could be amended at any time during the semester. (One of the key elements of strategic planning is to keep planning and the plan flexible; this principle was therefore practiced in the classes.) Some teams amended their plan while others did not.

MEASURING PERFORMANCE

Although performance is somewhat easy to measure in many simulations (e.g., profits, sales, stock price), a service based simulation presents problems which make judgement more subjective. Literally millions of dollars of investment must be made in equipment that has a useful life of 20 years or more. Markets must be "developed" and specialists trained. Firms, especially in the air transportation environment and the AIRLINE game, must position themselves (niche) correctly in terms of a sophisticated match of equipment, fares, type of promotion, and company image.

Thus the firm that may have the highest profits in the short term may not be well positioned to continue, or even survive, the future environment/competition. Therefore, performance evaluation was based 50% on the usual quantitative factors and 50% on qualitative factors. The former included return on sales, return on assets, total profits, employee turnover, yield per available seat mile, fleet reliability, and daily seat productivity (the last three are industry specific measures). The qualitative score was based on ability to match all the ingredients of a good niche, proper cash management, a proactive management of the firm (rather than reactive), and the team's implementation of a monitoring and feedback system (see Armstrong for the idea that a good strategic plan should provide for explicit feedback [13]). These two scores are presented both separately and combined in the statistical analysis.

The extent of formal planning each team did was judged by scoring the written plans each submitted at the beginning of the semester as well as the amendments that

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may have been submitted during the semester. The form used to score the extent of planning is shown as Figure 1.

FIGURE 1
STRATEGIC PLAN CONTENT ANALYSIS INSTRUMENT

PLAN QUALITY [1]					
FRAME: Addresses important issues & asymmetries (e.g., untapped niches).					
Addresses All					Addresses None
6	5	4	3	2	1
CONSISTENCY: Goals can coexist as a set; there are no conflict between goals					
Highly Consistent					
6	5	4	3	2	1
WORKABILITY: Company has resources or resources are available to the industry					
Workable					
6	5	4	3	2	1
COMPETENCE: Management has the experience or expertise to operate this company					
High					
6	5	4	3	2	1
COMPETITIVE TACTICS					
COST LEADERSHIP: Is it Addresses?					
Very Well					
6	5	4	3	2	1
FOCUS: How well is the target market addressed?					
Very Well					
6	5	4	3	2	1
DIFFERENTIATION: Does the plan address buyer value?					
Very Well					
6	5	4	3	2	1
PLAN RIGOR					
BUSINESS RISK CONSIDERED					
Very Well					
6	5	4	3	2	1
FINANCIAL RISK DESCRIBED					
Very Well					
6	5	4	3	2	1
RESEARCH ISSUES CONSIDERED					
Very Well					
6	5	4	3	2	1
LIFE CYCLE CONSIDERED [2]					
Very Well					
6	5	4	3	2	1
OVERALL PERFORMANCE (6=Highest team 1=Poor)					
Profits	ROSales	ROAssets	Yield	Reliability	Productivity

[1] Rumelt, R.P., "Evaluation of Strategy," in D.E. Schendel & C.W. Hofer, eds. *Strategic Management*. Boston: Little, Brown, 1979.

[2] James, B.G., "The theory of Corporate Life Cycle." *Long Range Planning*, April, 1984.

RESULTS

Descriptive statistics of the variables in the study are reported in Table 1. As shown, teams who had prepared a formal strategic plan and/or updated those plans had somewhat better performance than teams who did not have a plan, or as extensive plan. There was a very strong positive relationship between formal planning and the team's qualitative performance. However, there was not a relationship between plan quality and quantitative performance. Lack of a planning- quantitative performance relationship is not surprising. The quantitative performance consisted of only short term performance measures. The qualitative performance was measured more in terms of current positioning for future performance, niching, strong organizational design for the future, etc. Although plan quality did not have a significant relationship to the quantitative finish, both the quantitative and qualitative evaluation did have a positive correlation. "here was no relationship between formal planning and firm size nor between finish and firm size. This lends some support to the idea that quantitative finish is not always a robust indicator of simulation performance. Although one might think firm

size and quantitative finish should be closely related, this study indicated only a moderate relationship (at the .07 level).

TABLE 1
PEARSON CORRELATION COEFFICIENTS

	Plan Quality	Quantitative Finish	Qualitative Finish	Firm Size
Plan Quality	1.0000	.2796	.6993	.22227
Quantitative Finish	.0000	1.0000	.0007	.2284
Qualitative Finish	.2796	.1277	.5336	.3288
	.1277	.0000	.0020	.0708
	.6993	.5336	1.0000	.0230
	.0001	.0020	.0000	.9022

DISCUSSION

The results of this study parallel the results of the Curran and Hornaday study.[9] One of their concerns was whether other student populations would yield the same results. Although the methodologies of this study and theirs were different, the results appear to be somewhat similar.

The question to be explored further is why there a difference in performance due to planning. Do better students tend to take their coursework/simulation more seriously and therefore invest more time in the course? Perhaps the student umor mill has indicated that planning yields better results. Since good planning also includes the establishment of an effective control mechanism (i.e. an evaluation and feedback loop), this might be a possible variable. These finer points need to be tested in further research.

There is also the question of what simulation is used. Some simulations may produce results in the short term that would also hold up in the long term; thus quantitative results could be used as the sole indicator of performance. In AIRLINE, a large fixed investment can be required in order to create the size firm necessary to produce an acceptable level of profits. Thus, any short term results are biased toward the firm that doesn't have much growth. (In AIRLINE a 4-5 aircraft fleet is much more profitable in the short run than a 10-12 aircraft fleet and the coordination problems the larger size entails.) However a critical issue in using qualitative performance indicators is the problem of subjective judging of the factors utilized. Additional research and discussion among simulation users as to what constitutes performance is certainly indicated.

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