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A SIMULATED CONSULTING SERVICE FOR THE "COMPETE" MARKETING SIMULATION GAME

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ABSTRACT

Students often have trouble extracting the essence of the various strategies being used in a marketing simulation game within the time frame allotted. This paper describes a spreadsheet-based "consulting service" that can be offered to students to help them structure their strategic thinking.

INTRODUCTION

In his introduction to the case method, E. Raymond Corey (1981) recounts an experience Samuel H. Scudder had more than 100 years earlier as a graduate student of Natural History at Harvard University, studying under Professor Louis Agassiz. On the surface, the story seems far-removed from the study of business and marketing strategy, but in fact it is very relevant, especially for the case and simulation game method of teaching.

According to the account, Scudder was placed in a laboratory in front of a fish on a tray. He was told to observe the fish. At the same time, he was given the task of keeping the fish moist with alcohol, so he was involved and not able to wander off to other tasks.

As you can imagine, the task proved boring indeed. After the first few minutes, Scudder believed he had seen all there was to observe about the fish. In frustration, he decided to sketch the fish. The process revealed a number of features about the fish that he not previously observed. It also drew praise from Professor Agassiz, but with the reservation that Scudder had failed to note some of the most obvious facts. In response to Agassiz' prodding, Scudder noted the symmetry of the fish's structure, for which he received more praise but no reprieve. The process continued for three long days until Scudder had satisfied the professor with the depth of his observations.

Once Agassiz was satisfied regarding the first fish, he brought another of the same family with instructions that Scudder was now to compare the two. This process continued until Scudder had a thorough understanding of the similarities and differences among all the fish in the family, the family with other families, and so forth. In the end, he had acquired not only a knowledge of the specific fish he had studied, but he had developed a meaningful framework for integrating this knowledge into a larger system of understanding.

Corey suggests that this story teaches us six important things about effective teaching. These provide the underpinnings of the case method, and by extension, simulation games as well.

1. Teachers should present students with a carefully chosen set of material. Nevertheless, the responsibility for learning must be left to the student.

2. Teachers should make sure students focus on the problem. At the same time they should facilitate the learning process by providing constant encouragement.

3. The more students study a particular phenomenon, the more they are likely to see.

4. Some of the most important observations are the simplest and most apparent, especially when viewed retrospectively.

5. A critical facet of the learning experience comes from the students' efforts to compare one phenomenon with another, followed by a third and a fourth, until they can begin to generalize about a whole class.

6. The importance of the learning process transcends that of the phenomenon being studied. (What Scudder learned about learning was more important than what he learned about fish).

Corey uses this story as part of an argument to support the case method of teaching. He notes, however, that Scudder's experience was deficient in one critical area: Scudder was working alone. including a group of students in the process would have accelerated the learning process considerably.

Using simulation games is an extension of the case method, especially when done with teams and when combined with adequate class discussion to evaluate the play after the game is complete. While playing a single game in class usually limits the range of industry-specific phenomena a class can study, it provides an excellent opportunity to study the dynamics of how different business and marketing strategies interact in an actively competitive environment.

Notwithstanding Professor's Corey's rather cogent analysis, the fish-watching analogy fails in two major respects, however: First, today's business students generally have less patience than Scudder exhibited with Professor Agassiz' fish. If they do not see the pattern the professor is goading them to discover, they will tend to ignore the issue and move on. With several different class and school activities, and often outside jobs pressing on their time, they cannot (and are generally not otherwise disposed to) spend time "discovering" things that could have been explained to them in a few simple words.

Second, even if students had the time or patience to be contemplative in true Agassizian fashion, a simulation game will typically move quickly through relatively few decision periods. By the time contemplative students discover the critical patterns, the chance to apply their newfound knowledge has often passed.

Over the years, business educators have proposed various methods for dealing with this problem. For instance, one approach seeks to sensitize students to the issues of strategy by requiring them to prepare strategic plans prior to playing the game, following this with an analysis and discussion of how the strategies worked when the game is complete. While an understanding of the structure of these plans might be developed through a fish-watching type process, many teachers use texts to help students identify the principles and structure that their plans might follow (e.g. see Abel and Hammond 1979).

Another approach is to provide a relatively well organized "planning system" to guide students thinking about a given set of decisions. These systems range from simple outlines of business and marketing plans (see Mandell and Rosenberg 1981; Rossiter and Percy 1987) to more organized systems that elaborate on the kinds of strategies managers should consider (e.g. Abel 1980; Ansoff 1957; Kotler 1984; Porter 1980) to even more elaborate systems that propose a specific theoretical framework for conceptualizing a problem and making decisions. For instance. Foote, Cone & Selding Communications has developed such a model to govern its marketing and advertising planning that has received considerable attention in the literature (Berger 1985; Ratchford 1987; Vaughn 1980, 1986). Cannon (1987) has developed an adaptation of this model for structuring student decisions in a series of classroom decision exercises.

This paper discusses a method of helping students structure their gaming experience by providing a spreadsheet-based "consulting service" through which their attention is directed to the key types of information needed to identify and manage their strategy. The service will be discussed in the context of the Compete (Faria, Nulsen and Roussos 1984) marketing simulation game.

The purpose of the service is threefold: First, it provides the structure many students need to analyze the game and react strategically to the changing competitive environment.

Second, and more important, the service teaches students a process of classification and systematic analysis that can be applied in many other settings as well, just as Mr. Scudder's newfound knowledge of observation could be broadly applied in our earlier example of fish-watching.

Finally, the service provides an added benefit of helping students understand a major role of consultants in the real world of business - - that of helping clients organize information and the way they think about it.

NATURE OF THE COMPETE GAME

Compete is a complex marketing simulation game in which students work on a team basis, making marketing decisions for their electronics company, which is in competition with other student operated companies in the same industry. The student teams make decisions regarding prices; advertising spending, media choice and message content; production quantities; sales force size, time allocation and commission percentages; and spending for research and development to either improve product quality or to reduce production costs. These decisions are made for each of three products marketed in three geographic regions of the country. Each student team is also given the opportunity to purchase marketing research information on

forecasted demand, and on the actions of competitor companies in the current time period. Another aspect of the game is that the potential market share for each company is determined separately for each of the three products in each of the three regions, as a function of the marketing decisions made by the company in relation to those made by the competition. The Compete game allows the administrator a choice of three market share determination models: a multiplicative model, a weighted additive model, and an exponential multiplicative model. Probably the most widely used model for market share determination is the multiplicative model, which is explained here. The other models for market share determination are similar in terms of most of their effects.

The multiplicative model used for each product in each region consists of the following factors:

MARKET SHARE - MULT	BC ADV x MULT	PRT ADV x MULT	SP ADV x MULT	EFF S.F. x MULT	PRICE MULT x	ADV CONT x MULT	PROD Qua MULT

The specific decision variable multipliers referred to above are: Broadcast Advertising, Print Advertising, Sales Promotion, Effective Sales Force (as a function of sales force size, time allocation to the product, and sales force compensation), Price, Advertising Message Content, and Product Quality Level achieved.

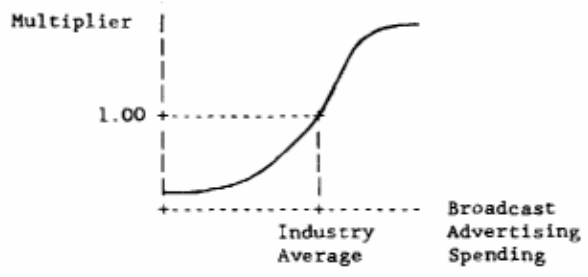
As an example for Company Al selling the Large Screen Television in the North Region, the various multipliers might be:

MARKET
SHARE - 1.1 x 1.05 x 0.95 x 0.90 x 0.91 x 1.03 x 1.08
MULT

= 0.9997

Potential market share for each company is determined by taking the ratio of each company's Market Share Multiplier to the total of the Multipliers for all of the companies in that industry, for the specific product and region in the current time period.

Each of these factors except the advertising content multiplier and the product quality multiplier are determined by an interpolation process from an S-curve function centered around the industry average spending for that factor. An example is the following graph for the broadcast Advertising Multiplier for the Large Screen Television in the North region.



If a company's spending for Broadcast advertising for the Television in Region I is at the industry average, the company's multiplier for that factor is 1.00. Higher spending than the average will give a higher

multiplier, while lower spending than the average will give a multiplier lower than 1.00. The impact of being higher or lower than the average will depend on the shape of the curve.

A student team striving for the most demand stimulation for their dollars would attempt to spend more on those factors with steeper (more responsive) curves, and less on those with shallower curves. If they could infer the shape of each curve, they could place their emphasis on those factors that were more important. However, since the students are never given the information as to the exact shape of the curves, they must attempt to discover this through analysis. Because they can purchase information on many of their competitors' decisions and results, teams can use a form of comparison analysis to develop insights as to the game's environment. This is complicated by the fact that the actions of their competitors affect the industry average level of spending which anchors each of the curves described above.

It should be apparent that the structure of the Compete marketing simulation game presents the students with a very complex set of decisions to be made under a number of uncertainties. The students are usually provided with hints as to methods of analysis through which they could discover successful strategies for the game, but beyond this, they are usually left to work out the details of their method of analysis on their own. The difficulty with this approach can be that students who already have good analytical skills will prosper in this situation, whole those who have not learned how to organize an analytical framework may face a frustrating struggle and learn much less from the experience.

THE NATURE OF THE CONSULTING SERVICE

The Compete game provides a great deal of information on the actions of competitors, in the form of market research reports available for a fee. Reports relating such facts as competitors pricing decisions, advertising expenditures (in several levels of detail), and a number of other factors can be purchased for fees which increase with the level of detail. Each team individually decides which reports provide useful information at an affordable price, and they purchase those reports that meet their criteria.

What the standard Compete environment lacks is a method for deciding which information is useful, and how to make use of this information once it is received. Without a guiding framework, a number of students will simply guess at the appropriate responses to the marketing problems posed by the game. This trial and error approach does not lead to a greatly increased understanding of marketing principles, nor is it an effective way to play the game. The final results may appear to the players to be a product either of chance, or of some process which they cannot fathom.

The consulting service provides the framework needed to tie the available information together into a cohesive and understandable unit. The Lotus 1-2-3 template supplied as the consulting service provides a team with a framework for integrating the information provided by the game into a visual comparison of the performance of each company, in relation to their decisions.

Figure 1 shows a copy of the paper form distributed to purchasers, on which they can organize information about their own and their competitors' actions for each of three products in a specific region. Visually examining the relationships between sales and factors such as advertising, price and sales force can lead to developing insights as to successful strategies for the game.

Figure 2 shows an example of actual use of the Lotus 1-2-3 template to analyze competitive factors for the Large Screen Television in the North Region for Period 7. The student team fills in the cells in the section shown on the top, as obtained from their purchases of market research information. The template automatically calculates the industry average for each of the factors, and also calculates the ratio of the value of each cell in the top section to its industry average for that factor. These ratio comparisons are shown in the lower section of Figure 2. The value of these comparisons is that each of the factors determining sales results can be more easily compared from company to company, in an effort to develop insights as to the factors which should be stressed in a successful strategy.

To insure that students view the template as a truly worthwhile tool, a moderately expensive license fee is charged. This will encourage students to make use of the template once they have it. If the service were free, the students might view the template as not worth their time. A fee will also discourage students from sharing the service with other teams.

The consulting service assumes that success in playing the game, in terms of both relative game performance and the learning process, depends on the student's ability to recognize patterns in the presented information. Once these patterns are recognized the students can begin to formulate a strategy, and adapt this strategy to the game environment. The key task is to sensitize the students to the emerging patterns so that they can monitor their relative performance in order to formulate an effective strategy.

In Compete the key patterns can be detected by comparing the results of each teams decisions. Some of these results include relative advertising expenditures broken down by product, region and media, sales volume and market share broken down by product and region, and product price broken down by region. In addition to a comprehensive comparison listing of the information that Compete provides, the spreadsheet template automatically calculates some key ratios, adding to the student's knowledge base.

An example of this approach can be shown by the total advertising expenditure ratios calculated by the spreadsheet. A relatively unsuccessful team would want to compare the results of their decisions with those of a relatively successful team. If the unsuccessful team discovered that their total advertising expenditure ratio was below 1.0 (the industry average) while the successful team had a ratio above 1.0 the unsuccessful team could attempt to remedy their situation by increasing their advertising expenditures in the next period. If they discovered that their expenditures are exceeding the industry average, it might be that their saturation advertising approach is eating into their profits. By observing the results of competitors' decisions a team can hypothesize a competitor's strategy and formulate appropriate responses.

In the past, student teams which did not develop an effective analytical framework of their own, tended to rely on trial-and-error. This tendency should be greatly reduced for those teams which avail themselves of the consulting service. Students who purchase this tool will be inclined to enter their marketing research results into their template rather than to

FIGURE 1
PAPER COPY OF ANALYSIS FORM
FOR THREE PRODUCTS IN A SPECIFIC REGION

Index Comparisons Region_____ Period_____

Product _____
Forecast Index _____
Actual Index _____
Product Cost _____
Sales Force _____

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Projected Price: _____
Projected Units: _____
Projected Shipment: _____
Projected Advertising:
BC:_____ PRT:_____ SP:_____

Company	Earnings /Share	Actual Sales	Actual %	Prod Price	Sales Force	Sales Comm%	Product Quality	Advertising BC	PRT	SP	Total Adver	Adv	Adv Rating	Comments
1														
2														
3														
4														
5														
Ind Avg														

Index Comparisons Region_____ Period_____

Product _____
Forecast Index _____
Actual Index _____
Product Cost _____
Sales Force _____

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Projected Price: _____
Projected Units: _____
Projected Shipment: _____
Projected Advertising:
BC:_____ PRT:_____ SP:_____

Company	Earnings /Share	Actual Sales	Actual %	Prod Price	Sales Force	Sales Comm%	Product Quality	Advertising BC	PRT	SP	Total Adver	Adv	Adv Rating	Comments
1														
2														
3														
4														
5														
Ind Avg														

Index Comparisons Region_____ Period_____

Product _____
Forecast Index _____
Actual Index _____
Product Cost _____
Sales Force _____

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Projected Price: _____
Projected Units: _____
Projected Shipment: _____
Projected Advertising:
BC:_____ PRT:_____ SP:_____

Company	Earnings /Share	Actual Sales	Actual %	Prod Price	Sales Force	Sales Comm%	Product Quality	Advertising BC	PRT	SP	Total Adver	Adv	Adv Rating	Comments
1														
2														
3														
4														
5														
Ind Avg														

FIGURE 2
ACTUAL LOTUS 1-2-3 TEMPLATE
SHOWING COMPARISON AND RATIO ANALYSIS FOR
LARGE SCREEN TELEVISION, REGION 1, PERIOD 7

Index Comparisons Region__1___ Period____7____

Product _____LST_
Forecast Index ____0.94
Actual Index _____0.91
Product Cost ___817.57
Sales Force _____58

Copyright 1987 (c)
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Projected Price:_____
Projected Units:_____
Projected Shipment:_____
Projected Advertising:
BC:_____ PRT:_____ SP:_____

Company	Earnings /Share	Actual Sales	Actual %	Prod Price	Sales Force	Sales Comm%	Product Quality	Advertising BC	PRT	SP	Total Adver	Adv Conten	Adv Rating	Comments
1	$2.65	6790	29.86	1310	58	0.7	107	0.6	0.5	0.3	1.4	5	105	EXTRA 689 UNITS SOLD: OTHER COs STOCKED OU
2	$2.22	5700	25.06	1300	58	0.8	105	0.7	0.4	0.3	1.4	5	105	
3	$2.11	5016	22.06	1310	62	0.8	107	0.5	0.4	0.3	1.36	2	102	
4	$3.05	3060	13.46	1250	58	3	106	0	0	0	0	2	102	No Advertising Here!
5	$1.47	2175	9.56	1450	65	0.7	102	0.4	0.3	0.2	0.92	3	103	
Ind Avg	2.3	4548.2	20	1324	60.2	1.2	105.4	0.4	0.3	0.2	1.01	3.4	103.4	

Ratio Comparisons Region__1___ Period____7____

Product _____LST_
Forecast Index ____0.94
Actual Index _____0.91
Product Cost ___817.57
Sales Force _____58

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Projected Price:_____
Projected Units:_____
Projected Shipment:_____
Projected Advertising:
BC:_____ PRT:_____ SP:_____

Company	Earnings /Share	Actual Sales	Actual %	Prod Price	Sales Force	Sales Comm%	Product Quality	Advertising BC	PRT	SP	Total Adver	Adv Content	Adv Ratin	Comments
1	1.15217	1.4928	1.493	0.989	0.96	0.58	1.0151	1.3	1.5	1.3	1.37	5	1.015	
2	0.96521	1.2532	1.253	0.981	0.96	0.66	0.9962	1.5	1.2	1.3	1.37	5	1.015	
3	0.91739	1.1028	1.103	0.989	1.02	0.66	1.0151	1.2	1.3	1.4	1.33	2	0.986	
4	1.32608	0.6727	0.673	0.944	0.96	2.5	1.0056	0	0	0	0	2	0.986	
5	0.63913	0.4782	0.478	1.095	1.07	0.58	0.9677	0.8	0.9	0.9	0.90	3	0.996	
Ind Avg	2.3	4548.2	20	1324	60.2	1.2	105.4	0.4	0.3	0.2	1.01	3.4	103.4	

leave them unanalyzed. This step should in itself familiarize the students with the game results. By viewing these results in the comparison format of the template, the patterns embodied in the game should become more apparent. The consulting service template provides a mechanism which allows the players to have their assumptions laid out explicitly in front of them when making decisions. This should lead to more informed decisions and increased learning on the part of the students.

The desired result of purchasing the consulting service is simple: to have students approach the game in a systematic way, and thus to enhance their game performance. In the process, it is hoped that the students will increase their knowledge of marketing principles. The end result should be that the game becomes much more a learning experience for students without already honed analytical skills, rather than a frustrating exercise.

SUMMARY AND CONCLUSIONS

Most simulation games provide facilities for passing important information to students. As a rule, however, this information tends to be research data rather than advice. In the real world, however, consultants come in two varieties: those who do research and those who provide advice. Furthermore, those who provide advice often make their major contribution by helping managers to structure a problem and organize the information they need to solve it.

This is precisely what the consulting service described in this paper seeks to do. It provides a framework to students that enables them to marshal the facts they need to recognize and formulate strategy. While it duplicates the process a successful student team will formulate on its own (Teach, Bornstein, Heapy and Milam 1987), this is essentially what consultants do in the real world as well. In the parlance of our introductory example, they make "fishwatching' a more efficient process.

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