# A Study of the Acquisition of Competitive Information in Business Simulations

Peter M. Markulis
SUNY Geneseo
Markulis@Geneseo.Edu


Michael Nugent
SUNY Stony Brook
Michael.Nugent@Stonybrook.Edu


Daniel R. Strang
SUNY Geneseo
Strang@Geneseo.Edu

## ABSTRACT

*This paper addresses the question of the use of competitor information in computerized simulations. Specifically, it examines if, and how, students playing a generalized business simulation purchase, and use, competitor information to assist them in making strategic decisions. The paper first reviews the literature on the topic, which surprisingly is sparse. The remainder of the paper is an examination of a series of hard data (actual purchasing decisions) and self-report data relating to the students purchasing rationales. The paper concludes that students purchase information but use it mainly to watch their competitors. In general students do not seem to know what else to do with competitor information. Finally, the study notes that students purchasing significant amounts of competitor information do not necessarily perform better than students purchasing less competitor information.*

## INTRODUCTION

Most schools of business require a basic marketing course for all students and many offer an elective (or required) course in market research. Most schools of business also require some type of capstone course or strategic management course for seniors. While the marketing courses stress the importance of knowing what competitors, and potential competitors are doing, strategic management courses emphasize the importance of using competitor information as part of the strategic management process (David, 2004: Thompson & Strickland, 2001). In most of the commonly used capstone business simulations there is a provision for competitors to acquire information about the other firms with whom they compete. What is not clear is why firms (in the form of student teams) may choose to acquire information about their competitors and how they use the information--if they acquired it--to make "better" strategic decisions.

Specifically, the paper asks the following questions of a business school's seniors playing a capstone simulation:

1. Did the students obtain competitor information?
2. If so, how did they use it?
3. If not, why not?

Further, this research asks the question as to whether those students (usually in the form of student teams), which purchased competitor information, performed better (overall and at the end of the simulation) than teams which did not purchase competitor information.

To address these questions, the authors used a two-pronged (a quasi-ethnographic) research method. First the authors obtained information about the use of competitor information by capturing the "hard data" which is made available via reports provided to the simulation administer routinely during each period of simulation play. Second, the authors asked these same students to state whether they purchased competitor information and if they did purchase it, how they used it to help them make strategic decisions. The students were also asked to state if they opted to not purchase the information. This information was gathered by an independent source to control for students' anxieties about grades.

## LITERATURE REVIEW

The authors reviewed the literature on the use of competitor information in simulations. The authors began this process by scrutinizing the most obvious repository for relevant research, the most recent edition of the online version of the Bernie Keys Library. The authors looked to determine what information simulation players are provided, what they obtain and most importantly, how do they use it.

Mergen and Pray (1992) clearly state "*Most games supply teams with a period-by-period market research data on the market mix of the competition.*" Our review of several of the commonly used business simulations supports the Mergen and Pray assertion (Table 1).

Although we have elected to not expend the time to explore all other the business simulations that may currently available, the pattern from the simulations that were reviewed is clear. Many of the simulations currently in use have the provision for players to obtain information about their competitors. For some simulations the players incurred no cost to view competitors' information while in other there was a cost.

As early in ABSEL history as Wolff and Haines (1974) when reporting the results of an unnamed experimental business

game indicate that at the beginning of each quarter firms must input a number of decisions including "*market research*". Again as early as 1975, Faria and Nulsen report, *"situations have arisen that include: ... dirty tricks utilized to gain access to market research at little or no cost, i.e. getting a competitive team member intoxicated in order to learn trade secrets."*

So, for more than forty years, the issue of student use of competitor's information has been a potential issue of discussion. In subsequent years a number of ABSEL researchers have mentioned that the simulations being used provided a mechanism for competitors to access competitive market information.

Our literature review of those that have specifically referred to market research (i.e., determining what your competitors are doing mentioned) is very short when one recognizes that members of ABSEL have been research all sorts of aspects of simulations for over 40 years. Our review of the ABSEL literature indicates occasional references to the availability of market research to teams that purchase competitor's market research information in a computer simulated environment. They include, in chronological order, the following starting with Lerviks (1979) who mentions the availability of market research information in reference to the simulation called *Dynamic Marketing* and Sord (1980) describing purchased competitor information in the following, "*We purchased the market research survey. The economic indicators in the newsletter were of no use.*"

Since that time a small number of ABSEL researchers have reported the behavior of students playing simulations and acquiring market information. They are reported as follows—

In 1981 Goodman, in describing the floating crap game, indicates, "*The game can be set up so that players may 'purchase for a price' information about the probabilities associated with at least some of the alternatives by specifying their dice in advance.*" Also in 1981, Gold and Strang indicate in their research using the simulation, *DECIDE*, students are permitted the option of purchasing market research information.

Schellenberger and Keyt (1983), without referencing a specific simulation, mention the "*purchases of market research.*" Schellenberger (1983) also states, "*What is surprising is that it does not seem to take a very high cost to discourage some firms (generally the worst teams) from purchasing market research information.*"

Fisk, Gentry and Fisk (1985) state that market research should be used in the play of their simulation, *AIRWAYS*. Golden (1986) in her description of the simulation, *Enterprise*,

and Smith (1986) in reference to the simulation, *MARKETER*, indicate the availability of "*market research as purchased.*" Faria and Dickinson (1987) indicate the availability of market research to competitors for the simulation called *LAPTOP*. Pasold (1987) comments, "*The market research has a feature that is unusual in a game, but normal in the real world.*" The paper indicates a plethora of market research items that are available to players.

Low, Cross, and Cannon (1988) in describing *COMPETE* mention the availability of "*market research for a fee.*" Over the years, several other of the *COMPETE* users who were presenting their research finding to ABSEL have also mentioned this feature in *COMPETE*.

Chiesl (1990) in his contribution to the Guide to Business Gaming and Experiential Learning focused on interactive real-time simulations generically and mentions the availability of "*continuous market research information.*"

In 1993, Ullmann while describing European students, says that, "*Teams under-invested in market research and made little use of it. Also, whereas in the U. S. participants immediately pour over their competitors' annual reports.*" Also in 1993, Dickinson and Faria in discussing the simulation, *SALES MANAGER*, indicate that "*9 market research reports may be purchased providing information as to competitor's strategies and sales performances.*"

Wellington and Faria (1997) indicate students are provided with "*a set of market reports at the end of each period of competition,*" and Faria and Wellington (2002) make reference to the purchase of market research information. Also in 2002, Tangedahl in describing the simulation, *The Game of Business*, indicates that students may purchase information about other teams in the industry.

Anderson, Lawton, and Wellington (2008) indicate competitors can purchase price information for each period of play using the simulation, *Merlin*, and Anderson and Lawton (2009) indicate competitors can purchase information while playing the simulation, *Threshold Competitor*.

So, over the years there have been a number of references to the purchase of market research information in the play of various simulations. Despite the availability of market research information and what might be described of a high incidence of students buying information while playing simulations, very little has been said of the actual use teams make of the information. Macy, Ellis, and Lifton (2010) offer an amusing

## TABLE 1
## PREVALENCE OF COMPETITIVE MARKET DATA SELECTED SIMULATIONS

| Company | Simulation | Competitive Market Data | Cost to View |
|---|---|---|---|
| Smartsims | Mikes Bikes | Yes | No |
| Smartsims | Music2Go | Yes | Yes |
| MarketPlace Simulations | MarketPlace Pro | Yes | Yes |
| McGraw Hill | BSG | Yes | No |
| McGraw Hill | GLO-BUS | Yes | No |
| Capsim | Foundation | Yes | No |
| Capsim | Capstone | Yes | No |
| Capsim | GlobalDNA | Yes | No |
| Jupiter Interactive Inc. | Zoom | Yes | No |

APPENDIX B provides the contact persons for the above simulations and the questions asked of the contact persons.

perspective when they report that one of their student/players said, *"I think that having my grade based on performance would have made me a little more engaged in the simulation and would have in turn caused me to pay more mind to the market research and forecasts."*

Wellington and Faria (1997) forced the issue of student/ players being conscientious of the decisions of competitors in the work in which they creatively investigated the *"impact of an artificial market-leading competitor on the other competitor's strategies."*

Markulis and Strang (2012) suggest the existence of a follow-the-leader (FtL) phenomenon. Clearly if teams are following the leader, they first have to acquire the information about the decisions of the leading team, and collaterally, all other teams.

As recently as 2015, Palia and Ryck, studied how competing participant teams might use the Web-based Competitor Analysis Package which enables competing teams to assess the strength of each element of the marketing mix. In their article they quote Aaker (2014) who states, *"Competitor analysis plays a central role in strategic market management."*

If Aaker is correct, and competitor analysis does play a central role in strategic market management, one is left to wonder why there is such a paucity of research on the importance of competitor analysis in the ABSEL literature. This current study is an attempt to better understand the behavior and motivations of student players in terms obtaining information and using competitor information in a simulation environment.

## METHODOLOGY

In this research project the authors used the DECIDE simulation (Pray and Strang, 1980) in a number of sections of a capstone undergraduate business strategy courses over a number of academic semesters. The DECIDE simulation has a feature that allows the competitors to purchase market research information for each period of play. DECIDE is a generalized business simulation in an oligopoly environment in which the competing teams are presumed to be making and selling shoes. Each period the competitors can purchase information about three key components of their marketing mix (i.e., the price of the shoes, the total dollar expenditure on promotion and the total dollar expenditure on research and development (R & D). Additionally, firms can determine the sales in units of shoes of their competitors. Firms may elect to purchase the specific price, promotion expenditure, R & D expenditure and sales for each firm **or** they may elect to purchase the industry mean for any of these items. The game environment allows each team to purchase the following competitor information: the price, promo-

tion expenditure, R & D expenditure and/or sales. The cost for each individual item is $100,000. A firm would have to spend $400,000 to have all the market research information available during any period of play. To put that figure into perspective, a well-managed firm in the DECIDE environment would have profits (after tax) on the order of $700,000 to $1,000,000 in magnitude. So, a pre-tax expenditure of $400,000 for all the information available about their competitors would be very significant.

Competitive teams are also given the option of purchasing the industry mean for any, or all, of the market research items. The price in the simulation is $50,000 for the mean in contrast to $100,000 for the specific value for each firm. As a side note, our experience is that there are occasions when game participants are so out of touch with the simulation process that they purchase both the specific price/promotion/R&D/sales for their competitors and also purchase the resulting mean. Sadly these students have not given enough thought to the process to realize, they can determine the mean by simply totaling the individual firm values which they have purchased and dividing that result by the number of teams in the industry. Our experience suggests that these are teams that haven't read the manual, and are, as a consequence, clueless.

The methodology for this study consisted of two data collection approaches. The first approach was to gather the actual decisions teams made about purchasing competitor information throughout the rounds of play and compare that to how those same teams performed on the simulation during those periods of play, including the final period. The game administrator collected this hard data which was then analyzed.

The second approach was to ask student teams (using an independent source to allay students' concerns about grading) if they purchased competitor information throughout the rounds of play and, if they did, why they purchased the information. In other words, what did they do with the information? If they did not purchase competitor information, the teams were asked to comment on why they did not purchase the information. A copy of this survey as well as some student demographics can be found in Appendix A.

## ANALYSIS & DISCUSSION

The analysis and discussion phase is broken into two sections. The first section focuses on the year 2014, for which the authors have both hard data as well as self-report data from the student teams. In the second phase, the authors look at hard data from five semesters of simulation play and compare purchased information with team performance.
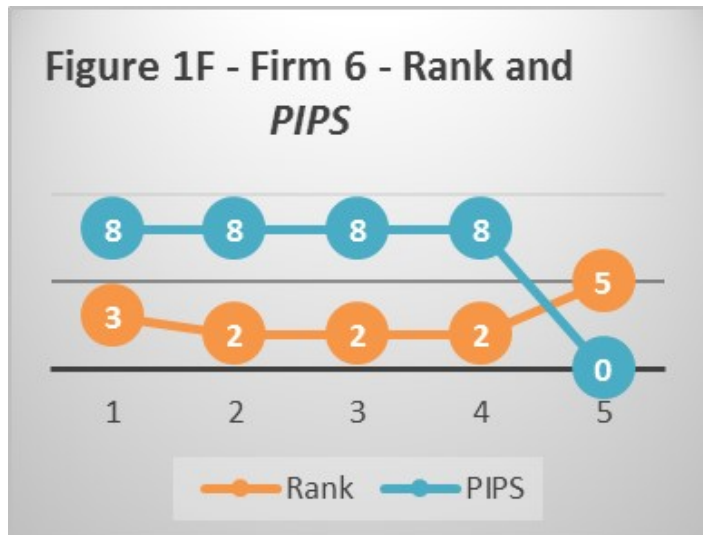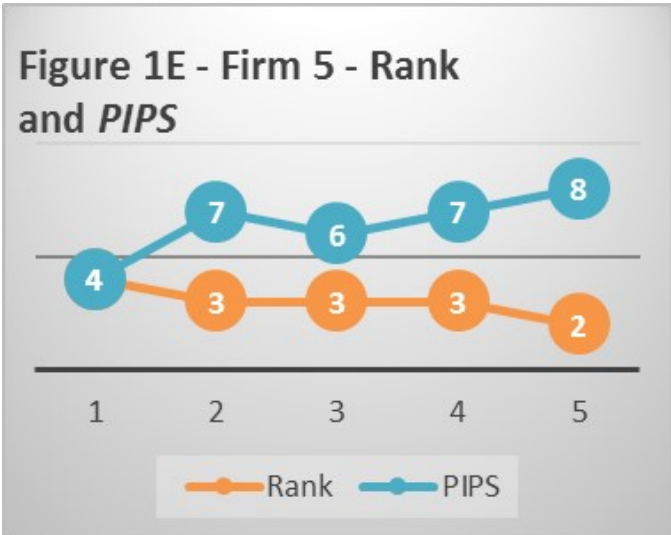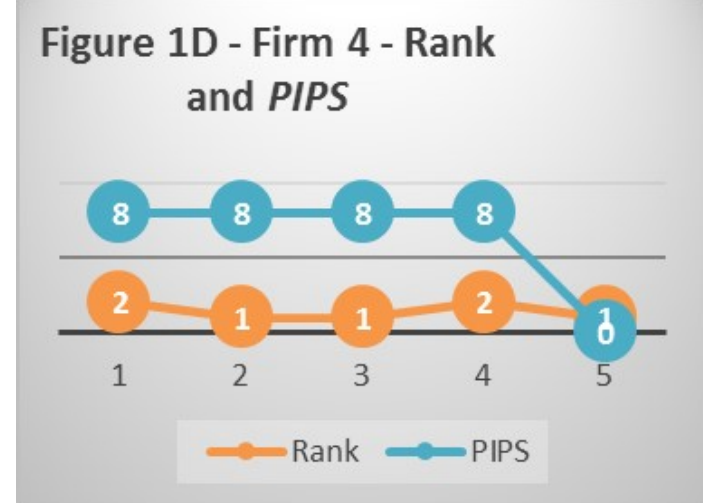
### TABLE 2A
### FINAL RANK AND *TIPS*
### FOR SPRING 2014 SEMESTER

| Team # | Final Rank | *TIPS* |
|--------|------------|--------|
| 1 | 4 | 33 |
| 2 | 3 | 33 |
| 3 | 6 | 24 |
| 4 | 1 | 32 |
| 5 | 2 | 32 |
| 6 | 5 | 32 |

### TABLE 2B
### FINAL RANK AND *TIPS*
### FOR FALL 2014 SEMESTER

| Team # | Final Rank | *TIPS* |
|--------|------------|--------|
| 1 | 4 | 32 |
| 2 | 3 | 38 |
| 3 | 6 | 36 |
| 4 | 1 | 32 |
| 5 | 2 | 32 |
| 6 | 5 | 22 |

*Phase 1.* To begin the first phase of the analysis, the authors compiled the hard data collected from the actual play of the simulation for the fall and spring 2014 semesters. The hard data shows the comparison between the purchases of marketing information and the team rank throughout six periods of simulation play for the fall 2014 semester and for five periods of play for the spring 2014 semester.

To facilitate the analysis of expenditures for information about competitors, two new variables were created, *PIPS* and *TIPS*. The new variable, *PIPS*, **P**eriod **I**nformation **P**urchase **S**core, was created using the following schema. For each of the four information items that might be purchased by the firms each period of play, a code of 0 was recorded if the firm did not purchase any items, a score of 1 was recorded for each industry

**Calculation of *PIPS* and *TIPS*:**



Figure 1A - Firm 1 - Rank and *PIPS*



Figure 1B - Firm 2 - Rank and *PIPS*



Figure 1C - Firm 3 - Rank and *PIPS*



Figure 1D - Firm 4 - Rank and *PIPS*



Figure 1E - Firm 5 - Rank and *PIPS*



Figure 1F - Firm 6 - Rank and *PIPS*
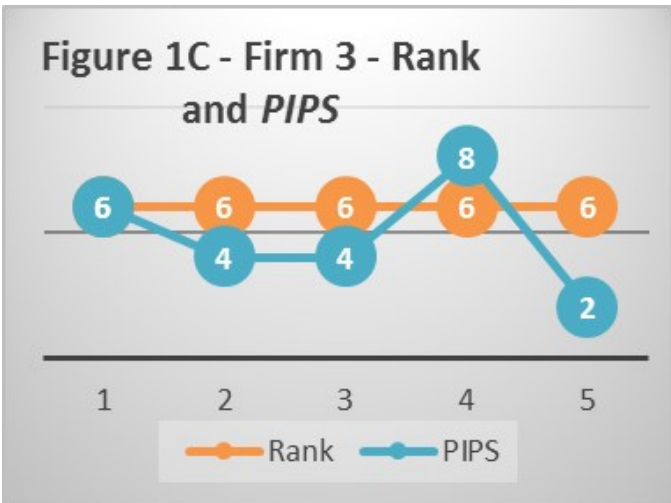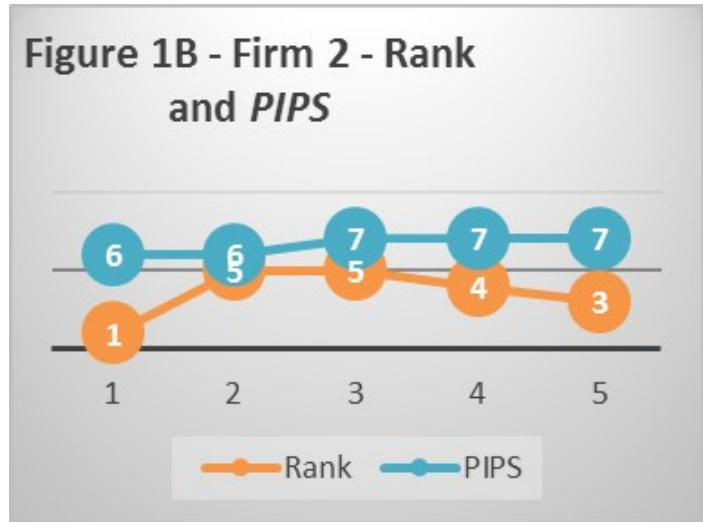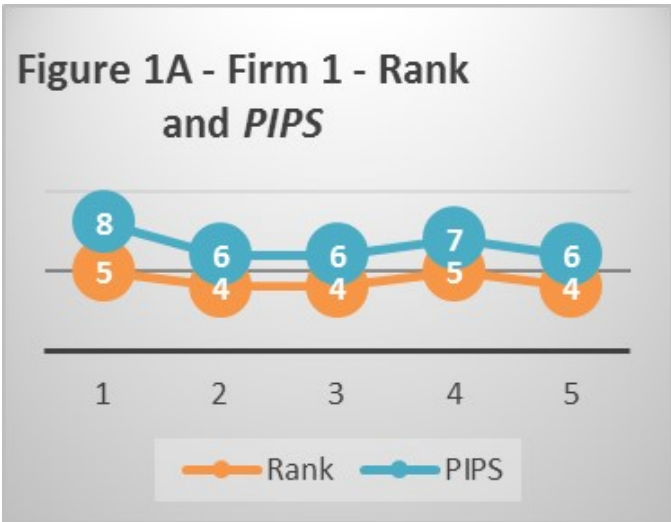
mean that was selected and a score of 2 was recorded if the firm purchased the specific values for each firm in the industry. Thus, a team could receive a *PIPS* between 0 and 8 for each round of play.

Perhaps a simple example will be helpful in understanding how the *PIPS* were determined. First, it is important to note that the *PIPS* is a measure of **information purchased within one period of play.** Let's imagine that during some period of play a team purchased the mean price, mean promotion, and also purchased the specific values for each team for R & D and sales. The *PIPS* that would be assigned to that team for that period of play would be the total of $1 + 1 + 2 + 2$ with a resulting score of 6. To put the resulting *PIPS* into perspective, the *PIPS* must fall between 0, for a team which purchased no information about competitors, to a maximum of 8, if the team purchased information for all four items (price, promotion, R & D, and sales) for each competing team.

The second new variable constructed was the *TIPS, total information purchase score.* It is important to note that while *PIPS* reflects team research acquisition activity constrained to **one period**, *TIPS* is cumulative **multi-period measure** of the activity of teams, in terms of acquiring information about competitors. So, the *TIPS,* ultimately is driven by (and the result of) the summation of a series of *PIPS* scores.

To better understand and put into better perspective, a simple example will be helpful as an explanation. Let's imagine a team purchased the mean price, mean promotion, and the specific values for each team for R & D and sales for each of five periods of play. The *PIPS* for each period would be 6 each period and the *TIPS* that would be reported would be the total of $6 + 6 + 6 + 6 + 6$ with a resulting score of 30. To put *TIPS* into perspective, *TIPS* for five periods of play would fall between 0 for a team which purchased no information about competitors, to a maximum of 40, if the team purchased information for all four items (price, promotion, R & D, and sales) for each competing team for all five periods.

The last column in tables 2A and 2B presents the *TIPS* for the two periods of play.

As shown in Table 2A, the first place team for the spring 2014 semester had at *TIPS* of 32, which is the same score as teams 5 and 6 had for that same semester, while the last place team had the lowest score of 24 and the other two teams had slightly higher scores of 33. These results would seem to indi-

cate that purchasing slightly more information apparently did not significantly help them to make better decisions, at least did not necessarily translate into a higher final ranking for this semester of play. The fall 2014 *TIPS* are even more interesting. The first place team had a final score of 32, which is the same score for the second and fourth place teams, while team 2 had the highest *TIPS* score (38) and ended in 3$^{rd}$ place while team 6 had the lowest score ended in 2$^{nd}$ to last place.

One might speculate here that the team which started stated off in first place decided to purchase less information during the simulation believing that they only had to "keep an eye" on the other teams, while the second place team (and perhaps 3$^{rd}$ place team) wanted to purchase as much information as possible so they could overtake the first place team. As it turns out, the first part of this supposition is somewhat supported by the hard data in that for the spring 2014 semester, team 4 started in first place and ended in first place, while team 5 started in 3rd place and ended in 2$^{nd}$ place.

In an attempt to see if any clear patterns emerged the activity of the six teams that competed in the spring of 2014 was graphed. Figures 1A through 1F present two key factors, *rank* and *PIPS*, for each of the six firms that were competing in the industry for five periods of play for the spring 2014 semester. Rank is simply based upon the relative positions of the firms with respect to computer generated stock market value. In the DECIDE simulation, the stock market value is the sum total of a number of key performance variables. The most important component of the computed stock value is the profitability of the firm.

If clear patterns relating rank and *PIPS* were expected, Figures 1A through 1D proved to be disappointing. However, several of the figures may warrant some discussion. Figure 1D is interesting because firm 4 was ranked either first or second each period of play and expended the maximum money to obtain competitor's information each period except the last. Presumably, firm 4 realized the simulation was coming to its end and expenditures on market information would be pointless. Similarly, firm 6 seemed to follow a policy of making large expenditures for competitors' information while maintaining a relatively high ranking. It may also be significant that firm 5's expenditure for competitors' information generally increased over the period of play and their ranking simultaneously improved. Firm 3, the industry's last place team seemed to show no consistent pattern in terms of expenditures for competitors' infor-

**TABLE 3**
**FIRST & SECOND PLACE TEAMS AND LAST**
**& SECOND LAST PLACE-TEAMS FOR 6 ROUNDS OF PLAY (FALL 2014)**

| T# | SR | ER | *TIPS* | RATIONALE SUMMARY |
|----|----|----|--------|-------------------|
| 4 | 2 | 1 | 24 | 1.Important to watch competitors<br>2.See what leader is doing<br>3.See total market sales—compare it to what each firm is doing |
| 5 | 4 | 2 | 28 | 1.Information helped us change some of our decisions<br>2.See what competition is doing |
| 3 | 6 | 6 | 30 | 1.Keep an eye on competitors<br>2.Have our own unique strategy |
| 6 | 4 | 5 | 32 | 1.Top teams hard to beat<br>2.Important to watch the competition<br>3.Helps us adjust our Price, Promotion & R & D decisions<br>4.Did not help with production decisions |

mation. Perhaps, it's the lack of any consistent strategy that is the key observation. All that said, candidly the authors had hoped more clear cut patterns would have emerged. That simply was not the case.

Interestingly, except for the last period of play (which many teams knew would be the last period), most teams bought information more often than not. As we shall see later from the team survey reports, explanations for why teams purchased competitor information were not always coherent or well-thought out. If speculation is any guide to this, it would suggest that teams felt a certain comfort level in purchasing the information even though they were not always sure what to do with it.

The second part of Phase 1 was to catalog and analyze the self-report survey data from the spring and fall 2014 semesters. It was not practical to include all the student team rationales for their strategy and their rationales for purchasing competitor information in the paper (the total for both the fall and spring semesters amounted to approximately 16 pages of information). To synthesize this information, the authors conducted two types of analysis. First the authors looked at the rationale for the two top teams and two last-place teams for each semester to see if there were differences in what they said their rationales were over the course of the simulation. Using a type of content analysis, this information was summarized into major themes or genres. This information is illustrated in Tables 3 & 4 and summarizes the rationales for all the periods of play.

As indicated in the Tables 3 & 4, the most stated rationale for buying/using competitor information is to "see what the competition is doing," with "keeping watch on the top team" as second most stated rationale. This is obviously an important concern in the competitive area and may, in fact, be what many companies actually do. It is also noteworthy that the top teams have different rationales than do the two last place teams for buying competitor information. Other than that, teams seem unsure of what else competitor data tells them. Indeed, some of the comments are not particularly astute or even intelligible. The following are examples of some of these comments:

- "we wanted the lowest price no matter what…."
- "…we bought….(but) have no idea…"
- "we bought the averages…"
- "we have been increasing capital investment, but it is not helping…"
- "Even though our performance is very good and we've continued to increase sales and production capabilities, our stock price is not keeping up with the other teams."
- "We've stopped buying securities all-together in order to focus on increasing our other decision variables."
- "We going to differentiate through promotion so we look to have the highest (expenditure there)."
- "We purchased the pricing information to examine what part of the market share is up for grabs. We purchased R&D and Promotion to insure we above the mean so we reap the benefits (lower waste factors and product differentiation)…"
- "… many other firms may choose to follow the first place, which could saturate the decision and make the strategy no longer profitable."
- "We are very price conscious compared to our competitors, so we are always looking for the right price… If we want to improve, we need to learn from those at the top and find ways to make ourselves unique.
- "we realized that having everyone's R&D would be meaningless when our goal was the beat the mean at least…"
- "We have always ignored first place's movements because they have been so efficient that we cannot hope to understand exactly how to apply their strategies to our situation."

Finally, the authors used the *Qualitative Discourse Analysis* software package to conduct a word/phrase count (Rinker, 2013). This was done to see how many teams used the same or similar words and phrases to describe their rationales for buying/using competitor information. Individual words, even the paring of two words, did not yield valuable information. For example, the four most often used words were (price=31;

## TABLE 4
## FIRST & SECOND PLACE TEAMS AND LAST
## & SECOND LAST PLACE-TEAMS FOR 5 ROUNDS OF PLAY (SPRING 2014)

| T# | SR | ER | *TIPS* | RATIONALE SUMMARY |
|---|---|---|---|---|
| 4 | 3 | 1 | 32 | 1.Important to see what others are doing, especially in price and sales.<br>2.Especially important to see what the second place team is doing |
| 5 | 1 | 2 | 32 | 1.We used the information to maintain an understanding of what promotion level was appropriate, how much R&D we wanted to spend, how large our market share is, and how our price fit into the industry.<br>2.We were able to understand our need to increase promotional spending and to decide what market position would be best for us. In addition, we realized that having everyone's R&D would be meaningless when our goal was the beat the mean at least, |
| 3 | 5 | 6 | 24 | 1.We have always ignored first place's movements because they have been so efficient that we cannot hope to understand exactly how to apply their strategies to our situation.<br>2.2. Important to emulate the movements of the leader |
| 6 | 6 | 5 | 32 | 1.We've also found a level of promotion that resulted in far fewer stockouts.<br>2.Based on other teams prices and promotion, we created our next period's decision model with the aim of having the lowest price, and setting an appropriate amount of funds to promotion to minimize stockouts without reducing market share |

KEY: T# = Team number; SR = Starting Rank; ER = Ending Rank

promotion=26; market=23; & important= 21). However, 3, 4 and 5 word phrases yielded more meaningful results. Table 5 illustrates these results.

Based on this analysis of self-reports, it seems that student teams felt watching the first place team (combining columns 1 and 4) and watching the competition (combining columns 2 & 3) in general were the most often used concepts for this simulation. The reader might be interested to know that terms like "predicting," "analysis," "how to use…," "make better decisions" and related terms were some of the least often used words or phrases to discuss buying and/or using competitor information.

*Phase 2:* The Phase 2 approach took a longitudinal look at 6 semesters worth of hard data. Table 6 presents the rank at the end of 5 periods of play for each team in the industry and *TIPS* for all the periods of play over the course of 6 semesters of simulation use.

So, what can be gleaned from the data in Table 6? Due to the inherent variability in the behavior of teams playing simulations, one has to be wary not to read too much into the data and must be cautious in discovering the possible existence of meaningful patterns in the data    That said, the reader will note that the team that finished first had one of the smallest expenditures for market information of the teams in the respective industry for 4 of the semesters observed and the second smallest expenditure for the remaining 2 semesters. It might be interesting to speculate why that might be the case. One possible explanation is that the teams that spent little on purchasing competitor information saved a significant expenditure and parlayed that savings into a first-place ranking. Another explanation might be that the lead team in the industry determined there was no value in tracking the behavior of their lesser competitors. It seems that an extensive interrogation of the competitors might be necessary to provide more definitive insights into our understanding of the complex simulation dynamics and motivations on the part of teams to purchase competitor information.

## CONCLUSIONS

This paper addressed the question of the use of competitor information in computerized simulation. As far as we know, it is one of the first papers to focus specifically on this topic. The paper sought to examine the following questions:

Did students obtain competitor information?
If so, how do they use it?
If not, why not?

The authors used hard data from five semesters of simulation play and self-report data from 2 semesters of simulation play to address these questions.

What is clear from the hard data is that students purchased competitor information more often than not during several rounds of simulation play. From the self-report data, (which overlaps the hard data for the spring and fall 2014 semesters), we learn that the most commonly stated reason for purchasing competitive data was to see what the competition was doing, or watching the top team (the leader). A rather surprisingly result from this study is that there seems to be little relationship between the purchasing of competitor information and final simulation rank.

An observation the authors had comes from Table 4, where the student team self-reports with the comment, "We have always ignored first place's movements because they have been so efficient that we cannot hope to understand exactly how to apply their strategies to our situation?" This is a very telling comment and oft repeated (although not as crassly) in other self-reports. Students buy the information, but are not sure what to make of it. This may explain why students often seem to apply the "follow-the-leader" strategy when making their decisions. As noted elsewhere, the leader must be doing something right, so if we know nothing else, following that strategy is probably the best strategy.

While this study is limited to one simulation, clearly more needs to be done particularly in terms of ascertaining what students do with the competitor information they purchase. In some simulations, this information obviously costs them something (and one might argue, that sales, promotion and R & D expenditures should cost something in all simulations), instructors of marketing and marketing research courses and instructors of capstone-type courses may need to discuss the connection between the purchase and use of competitor information so that students have a better understanding of how to effectively use this information in decision-making.

**TABLE 5**
**RESULTS OF WORD AND PHRASE COUNT ANALYSIS**

| # | Words/Phrases | Related words/phrases | Occurrences |
|---|---|---|---|
| 1 | Competition | (watch, observe, "look at," " be aware of," "keep an eye on," be mindful of) | 18 |
| 2 | the first place team | (watch, observe, emulate, imitate, "keep an eye on") | 16 |
| 3 | the first place team | (Follow) | 13 |
| 4 | others teams | (watch, observe, emulate, imitate, "keep an eye on") | 11 |
| 5 | aim of having the lowest price | (seek to.., strives for, maintain, we have…) | 9 |
| 7 | an appropriate amount of funds to | (provide more dividends, buy all the information, invest in capital development) | 8 |

# TABLE 6
## RANK AT THE END OF 5 PERIODS
## OF PLAY AND *TIPS* FOR 5 PERIODS

| | Rank at the end of 5 periods of play | *TIPS* |
|---|:---:|:---:|
| Fall 2012 | 1 | 20 |
| | 2 | 38 |
| | 3 | 32 |
| | 4 | 31 |
| Spring 2013 | 1 | 14 |
| | 2 | 38 |
| | 3 | 38 |
| | 4 | 36 |
| | 5 | 38 |
| Fall 2013 | 1 | 26 |
| | 2 | 40 |
| | 3 | 20 |
| | 4 | 30 |
| Spring 2014 | 1 | 32 |
| | 2 | 32 |
| | 3 | 33 |
| | 4 | 33 |
| | 5 | 32 |
| | 6 | 24 |
| Fall 2014 | 1 | 24 |
| | 2 | 28 |
| | 3 | 28 |
| | 4 | 36 |
| | 5 | 30 |
| | 6 | 32 |
| Spring 2015 | 1 | 8 |
| | 2 | 25 |
| | 3 | 20 |
| | 4 | 44* |
| | 5 | 44* |
| | 6 | 25 |

Explanation of  * :  For a team to show a TIPS that exceeds 40, the team must have purchased both the individual value **and** the mean.  Any team that did that was clearly clueless because they could calculate the mean if they expended the money to buy the individual values.

# REFERENCES

Aaker, D. (2014). *Strategic Market Management*. New Jersey: Wiley.

Anderson, P. and Lawton, L. (2009). "The Relationship between Goal Orientation and Simulation Performance with Attitude Change and Perceived Learning," *Developments in Business Simulation & Experiential Learning*, 36, 75-82. Reprinted in The Bernie Keys Library, 16th Edition.

Anderson, P., Lawton, L. and Wellington, W. (2008). "Goal Orientation and Simulation Performance," *Developments in Business Simulation & Experiential Learning*, 35, 329-335. Reprinted in The Bernie Keys Library, 16th Edition.

Chiesl, N. (1990). "Interactive Real Time Simulation," *Guide to Business Gaming and Experiential Learning,* 143-144. Reprinted in The Bernie Keys Library, 16th Edition.

David, Fred, R. (2004). Strategic Management: Concepts and Cases, 10th edition.  Pearson/Prentice-Hall.

Dickinson, J., and Faria, A. J. (1993). "Sales Manager:  A Simulation," *Developments in Business Simulation & Experiential Learning*, 20, 50-53.  Reprinted in The Bernie Keys Library, 16th Edition.

Faria, A. J., and Dickinson, J. (1987). Laptop: A Principles of Marketing Simulation," *Developments in Business Simulation & Experiential Learning*, 14, 53-56. Reprinted in The Bernie Keys Library, 16th Edition

Faria, A. J. and Nulsen, R. (1975). "Student Evaluation of and Reaction to a Marketing Simulation Game Under Varying Circumstances," *Developments in Business Simulation & Experiential Learning*, 2, 347-355. Reprinted in The Bernie Keys Library, 16th Edition.

Faria, A. J. and Wellington (2002). "Participant Identification of Competitors in a Marketing Simulation Competition," *Developments in Business Simulation & Experiential Learning*, 29, 38-44. Reprinted in The Bernie Keys Library, 16th Edition.

Fisk, J., Gentry, J. and Fisk, R. (1985). "Airways: A Microcomputer Simulation of a Service Industry," *Developments in Business Simulation & Experiential Learning*, 12, 127-130. Reprinted in The Bernie Keys Library, 16th Edition.

Gold, S. and Gold, H. (1994). "Astute Business Policy: A Simulation of the Automobile Industry," *Developments in Business Simulation & Experiential Learning*, 21, 170. Reprinted in The Bernie Keys Library, 16th Edition.

Gold, S. and Strang, D. (1981). "The Success of a Computerized Simulation in Microeconomic Pedagogy," *Developments in Business Simulation & Experiential Learning*, 8, 95-98. Reprinted in The Bernie Keys Library, 16th Edition.

Golden, P. (1986) "Enterprise: A Multi-Purpose Management Simulation," *Developments in Business Simulation & Experiential Learning*, 13, 155-156. Reprinted in The Bernie Keys Library, 16th Edition.

Goodman, F. (1981). "The Floating Crap Game," *Journal of Experiential Learning and Simulations*, 3, 61-72.

Lerviks, A. (1979). "Dynamic Marketing: A New Marketing Decision Game," *Journal of Experiential Learning and Simulations*, 1, 167-177.

Low, J., Cross, A., and Cannon, H. (1988). "A Simulated consulting Service for the "Compete" Marketing Simulation Game," *Developments in Business Simulation & Experiential Learning*, 15, 209-214. Reprinted in The Bernie Keys Library, 16th Edition.

Macy, G., Ellis, A., and Lifton, D. (2010). "Issues in Simulation Implementation: Lessons from a Freshman Seminar," *Developments in Business Simulation & Experiential Learning*, 37, 42-54. Reprinted in The Bernie Keys Library, 16th Edition.

Markulis, P. and Strang, D. (2012). "Follow the Leader: Are We Teaching Our Students to be Thinkers or Followers?" *Developments in Business Simulation & Experiential Learning*, 39, 16-25. Reprinted in The Bernie Keys Library, 16th Edition.

Mergen, E. and Pray, T. (1992). "Modelling Total Quality Elements into a Strategy-Oriented Simulation," *Developments in Business Simulation & Experiential Learning*, 19, 114-121. Reprinted in The Bernie Keys Library, 16th Edition.

Palia, A. and Ryck, J. (2015). "Assessing Competitor Strategic Business Units with the Competitor Analysis Package," *Developments in Business Simulation & Experiential Learning*, 42, 52-68. Reprinted in The Bernie Keys Library, 16th Edition.

Pasol, P. (1987). "Computype: A Strategic Marketing Game," *Developments in Business Simulation & Experiential Learning*, 14, 155-159. Reprinted in The Bernie Keys Library, 16th Edition.

Pray, T. and Strang, D. (1980). *DECIDE, (A Computer-Based Decision Game)*, New York, McGraw-Hill.

Rinker, T. (2103). *Qualitative Discourse Analysis Package*, University at Buffalo/SUNY, Buffalo, NY, Version 2.1.0, URL http://githhub.com/trinker/qdap.

Schellenberger, R. (1983). "MANSYM III Decision Support System Demonstration," *Developments in Business Simulation & Experiential Learning*, 10, 69-71. Reprinted in The Bernie Keys Library, 16th Edition.

Schellenberger, R. and Keyt, J. (1983). "A Methodology for Assessing the Internal Validity of Business Simulations," *Developments in Business Simulation & Experiential Learning*, 13, 6-8. Reprinted in The Bernie Keys Library, 16th Edition.

Smith, J. (1986). "Marketer: A Microcomputer Simulation in a High Tech Industry," *Developments in Business Simulation & Experiential Learning*, 10, 157-158. Reprinted in The Bernie Keys Library, 16th Edition.

Sord, B. (1980). "Strategies, Managerial Approaches, and Decision Making in a General Management Simulation," *Developments in Business Simulation & Experiential Learning*, 7, 210-213. Reprinted in The Bernie Keys Library, 16th Edition.

Tangedahl, L. (2002). "The Game of Business—A Weekend MBA Course," *Developments in Business Simulation & Experiential Learning*, 29, 218-219. Reprinted in The Bernie Keys Library, 16th Edition.

Thompson, A. A. & Strickland, A. J. (2001). Strategic Management: Concepts and Cases, 12th edition. McGraw-Hill Higher Education.

Ullmann, A. (1993). "Content or Process?—Content or Process! Some Observations and Reflections about Management Education in Central Europe," *Developments in Business Simulation & Experiential Learning*, 20, 110-115. Reprinted in The Bernie Keys Library, 16th Edition.

Wellington, W. and Faria, A. J. (1997). "Impact of an Artificial Market Leader on Simulation Competitors' Strategies, *Developments in Business Simulation & Experiential Learning*, 24, 152-157. Reprinted in The Bernie Keys Library, 16th Edition.

Wolff, R. and Haines, G. Jr. (1974). "The Executive Education Using the Toronto Management Game," *Developments in Business Simulation & Experiential Learning*, 1, 209-216. Reprinted in The Bernie Keys Library, 16th Edition.

# APPENDIX A: STUDENT TEAM SELF-REPORT SURVEY

Team #_____     Period #_____          This Period's Rank _____     Last Period's Rank_____

1. Describe your game strategy for this period

2. Did you buy information?

      a. If yes, what types (Price, R&D, Promotion, Sales) and whether your purchased ALL or the MEANS or a mix of both

      b. What and how did you use the information you purchased?

3. If not purchased, why not?

4. Do you think it is important (or not) to follow the movements of the first place team? Explain

    DEMOGRAPHIC PROFILE: Students were all School of Business seniors, 1/3 were accounting majors, and 40% were female. Students have taken most—if not all--of their major business courses at this point.

# APPENDIX B: CONTACT PERSONS & QUESTIONS

These questions were asked to the following companies: Smartsims, Marketplace, McGraw Hill, Capsim and Jupiter Interactive.

1. Does your *simulation contain competitor market data?*
2. *When students play the simulation are their companies able to use profits to pay for competitive market data (such as: amount of money* other teams are spending on marketing and marketing demographics) or are they provided this information for free in a simulation report?

The following persons responded to our questions

- Ian McPherson, Director, Sales & Marketing, Smartsims Business Simulations.
- Lucas Bailey, Marketplace Support, Marketplace Simulations
- Gregory Stappenbeck, GLO-BUS Technical Support, McGraw Hill
- Renee Marongwe, Capsim Faculty Support, Capsim
  Lynda Jones, Faculty Support Director, Jupiter Interactive