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*Thomas Andrews, Cynthia Benzing, and Matthew Fehnel*

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and Theoretical Perspective  
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## EDITORIAL NOTES

The continuing goal of the *Journal of the Northeastern Association of Business, Economics and Technology (JNABET)* is the publication of general-interest business and economics articles that demonstrate academic rigor, while at the same time are readable and useful.

We want to remind our readers of two recent events that demonstrate the growing stature of *JNABET*. First, *Cabell's Directory of Publishing Opportunities* has named *JNABET* a "Cabell's Commendable Journal." Second, *JNABET* is now available through the EBSCO Host research database, which we expect will dramatically increase our readership and the citations of our authors.

*JNABET* currently has two co-editors-in-chief. Dr. John Walker performed all final editing to the articles in this edition. Dr. Stephen Liedtka coordinated the review process for all articles submitted to the *Journal*, with assistance from Professor Henry Check, who is the associate editor for *JNABET's* accounting and finance papers.

The editors of *JNABET* are pleased to announce that Dr. Amy F. Lipton of Saint Joseph's University is this year's recipient of the "Referee of the Year" award. We thank Amy for the outstanding work she has contributed to the *Journal*.

The current acceptance rate for *JNABET* is roughly 35%. We have strived to accept only high-quality research, while at the same time maintaining *JNABET* as a realistic publishing outlet for business and economics faculty throughout the Pennsylvania State System of Higher Education (PASSHE) and the Northeastern United States. Our editorial review board members and referees are the key to this process. They have been challenged to help "grow" papers that have significant potential by providing authors with thorough, critical review comments. Consistent with this objective, we generally require two to three rounds of review prior to accepting articles for publication.

The Fall 2011 edition of the *Journal* reflects the commitment of numerous volunteers. We especially thank the officers of the Northeastern Association of Business, Economics and Technology and the many editorial review board members and referees (listed on the next page) who have reviewed articles for recent editions of *JNABET*.

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## THE PRICE DECLINE ANOMALY IN CHRISTMAS SEASON INTERNET AUCTIONS OF PS3s

Thomas Andrews, Cynthia Benzing, and Matthew Fehnel

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### ABSTRACT

This paper examines 3,797 eBay auctions of Playstation 3s (PS3) during Christmas season 2006 to determine how the time remaining until Christmas and the supply of goods influence a bidder's willingness to pay for a good. The number of days between the auction end date and Christmas influenced the bid, with higher final bids occurring earlier in the Christmas season. This evidence of a "holiday price decline anomaly" means that sellers who sold earlier in the holiday season were more likely to obtain higher bids than those who sold later. The final bid was also influenced by the eBay supply, such that the greater the number of auctions ending around the same time, the lower the final bid.

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### INTRODUCTION

During the last decade, growth in e-commerce holiday sales has been unparalleled in the retail industry. According to the U.S. Department of Commerce (2010), e-commerce retail sales in the fourth quarter of 2006 were 24% higher than they were in the same quarter one year before. Online spending between Thanksgiving and Christmas grew 21% between 2006 and 2007 (comScore, Inc., 2007). Unique names like "Cyber Monday" and "Green Monday" have been given to the Monday after Thanksgiving and the Monday two weeks later because e-commerce retail activity on these days is generally stronger than other days during the Christmas season. Auction sites like eBay exhibit similar seasonal patterns of online sales; consequently, they report their strongest sales during the fourth quarter of each year. Because auction markets generate quality sales data on pricing, these data can provide information about how buyer, seller, market, and product characteristics affect a consumer's willingness-to-pay and final bid during the Christmas season.

Data from almost 4,000 eBay auctions were examined to determine how supply and time to Christmas affected a bidder's willingness-to-pay for PlayStation 3s (PS3) during the 2006 Christmas season. This study is one of only a few (Chan, Kadiyali & Park, 2007; McDonald & Slawson, 2002; Melnik & Alm, 2005) that explicitly includes a supply variable, and one of only two (Halcoussis & Mathews, 2007) that examines the "price decline anomaly" over a multi-day period culminating in an event. While many economists have observed the "price decline anomaly" in sequential auctions over

the same day, this study examines how time to an event, like Christmas, might affect a bidder's willingness-to-pay for a good. Only three articles have examined the behavior of retail prices during the Thanksgiving–Christmas holiday period. These studies (Levy, Chen, Müller, Dutta, & Bergen, 2010; Müller, Bergen, Dutta, & Levy, 2006; and Müller, Bergen, Dutta, & Levy, 2007) of food and basic items sold in supermarkets found greater price rigidity during the holiday season. This study explores how the willingness-to-pay for a popular new game system, likely to be a gift, varies during the holiday season when purchased through online auctions.

### LITERATURE REVIEW

During the last ten years, many researchers have studied how prices are determined in Internet auctions, but few have analyzed how supply and time until an event affect the bid price. This study uses the example of PS3 gaming systems to determine whether the willingness-to-pay during the holiday season is related to its supply availability on the Internet auction site and the number of days until Christmas.

Economic theory suggests that the level of competitiveness influences prices. The greater the supply offered and the lower the demand, the lower the bids or price. In McDonald and Slawson's (2002) study of collector Barbie doll auctions on eBay, final price decreased as the number of auctions ending on the same day increased. Melnik and Alm (2005) also found a decrease in the final price of coins sold at eBay auctions as the number of auctions ending on the same day increased. According to a study of

2,322 auctions of notebook computers in the Korean Internet market (Chan, Kadiyali & Park, 2007), the willingness-to-pay declined as the number of similar products listed concurrently increased. During the 2006 holiday season, the availability of PS3s fluctuated due to manufacturing issues. Although the supply was severely limited at initial offering, the supply did not decline monotonically toward Christmas. For that reason, the eBay supply is examined independent of the number of days until Christmas. This study expects the eBay supply to have a significant effect on the willingness-to-pay with fewer offered PS3s resulting in a greater willingness-to-pay.

Studies of in-person auctions have observed a “price decline anomaly” for sequential auctions that occur during the same day. Ashenfelter (1989) and McAfee and Vincent (1993) observed that prices in sequential auctions of wine decline as the auctions proceed, such that bidders are willing to pay more early in the day and less later in the day for identical cases of wine. This effect has been observed in English auctions of livestock (Buccola, 1982), real estate (Ashenfelter & Genesove, 1992), art (Beggs & Graddy, 1997) and porcelain objects recovered from shipwrecks (Ginsburgh & van Ours, 2007). Three researchers, van den Berg, van Ours, and Pradhan (2001), observed the same effect in Dutch auctions of flower bulbs. In some cases the effect has been attributed to the decline in the quality of lots as the day or auction proceeds (Beggs & Graddy, 1997). For auctions involving homogeneous goods, the effect has been attributed to auction rules that allow the winner of the first lot the option of buying future similar lots at the same price. This rule creates a valuable option related to the first sale. In contrast to the aforementioned auction studies, Raviv (2006) found that prices in an in-person used car auction actually increased early in the auction and then stabilized. Raviv concluded that, in car auctions, bidders may need to “warm up” and tend to bid lower at the beginning of the day. In addition, bidders take time to adjust to asymmetric information in the early rounds of a used car auction.

The declining price phenomenon has been explained a number of ways. The decline in prices in auctions of homogeneous goods may be related to the opportunity cost of waiting for the next auction. Buyers may be willing to pay a premium equal to the value of the personal time saved by securing the product earlier. Further, buyers may be willing to pay a premium in an earlier auction to avoid future uncertainty. Risk averse buyers may be willing to pay more to eliminate the probability that supply may be even less in the future or demand and prices may be even higher. This study hypothesizes that the same

day price decline anomaly will not be a determining factor of final bid prices in eBay auctions of PS3s. Because an Internet auction can begin and end at any time of day, the same day effect would not be observable because the earliest time period of the day is not necessarily when bidding would begin, and the end of the day is not necessarily when an Internet auction ends. In other words, the rolling effect of the auctions would reduce any same day effect on price.

Only one study of Internet auctions has examined the price decline anomaly with respect to simultaneous and sequential Internet auctions over a number of days until the occurrence of an event. Halcoussis and Mathews (2007) studied the price of concert tickets for a rock band and found that a variable representing the length of time between the close of an auction and the concert was directly related to the price paid. According to Halcoussis and Mathews, the price declined \$0.93 per day per ticket as the auction’s end date approached the date of the concert. Because the product was not usable until the concert, this is similar to the purchase of a Christmas gift that is not usable until Christmas. On the other hand, in contrast to a concert ticket, a PlayStation 3 would be usable for an extended period (perhaps years) after the date of purchase. Also, PlayStation 3s may be purchased for purposes other than Christmas and, in that case, may not be subject to a price decline anomaly leading up to December 25.

Relatively few studies have examined price behavior during the Thanksgiving–Christmas holiday period. In one study of foods and basic items sold in supermarkets during the Thanksgiving–Christmas holiday period, Müller et al. (2006) found greater price rigidity for private label products relative to nationally branded products. Examining similar supermarket products during the Christmas season, Müller et al. (2007) found that fewer new products are introduced or discontinued during this period. Lastly, Levi et al. (2010) concluded that retail prices of supermarket items are more rigid during the holiday period because of the opportunity cost related to changing prices. During the busier holiday season, stores must use more resources to stock shelves, answer customer questions, and ring up sales. There are fewer resources available to re-price products.

## HYPOTHESES

This is the first study to examine the willingness-to-pay for a popular entertainment system during the Christmas season. The newly released model of PlayStation was more likely to become a Christmas gift than the food and basic items tracked in previous studies. In contrast to supermarket studies by Müller et al. (2007) and Levi et al. (2010), the prices in an

**Table 1**  
Dependent and Independent Variables

Dependent Variable	Description
<i>BID</i>	Final bid (\$) if the PlayStation was not sold and price (which may or may not be the final bid) for PS3s that were sold.
Independent Variables	
<i>SUPPLY1</i>	The number of other PS3s being auctioned in the hour around that particular auction.
<i>SUPPLY24</i>	The number of PS3s being auctioned in the 24 hours around that particular auction.
<i>DAYS</i>	Number of days until Christmas as of the end of the auction.
<i>GB</i>	Dummy = 1 if unit is 60 gigabytes; 0 if unit is 20 gigabytes.
<i>BUNDLE</i>	Dummy = 1 if the unit includes a player bundle.
<i>GAME</i>	Dummy = 1 if the unit includes at least 2 games with the PS3.
<i>CONT</i>	Dummy = 1 if the unit includes an extra controller.
<i>MOVIE</i>	Dummy = 1 if the unit includes at least one movie.
<i>SHIP</i>	Cost (\$) of shipping the PS3. The SHIP variable = 0 if costs are paid by the seller.
<i>NUMBIDS</i>	Number of bids
<i>TIME1</i>	Dummy = 1 if the auction ends between 12 AM and 6 AM.
<i>TIME2</i>	Dummy = 1 if the auction ends between 6 AM and 12 PM.
<i>TIME3</i>	Dummy = 1 if the auction ends between 12 PM and 6 PM.
<i>WKEND</i>	Dummy = 1 if the auction ends on a weekend; 0 if the auction ends on a weekday.

**Table 2**  
Descriptive Statistics of Variables  
(N = 3,797)

Variable	Descriptive Statistics
<i>SUPPLY1</i>	Mean = 23; S.D. = 19
<i>SUPPLY24</i>	Mean = 253; S.D. = 155
<i>BID</i>	Mean = \$800; S.D. = \$254

<i>GB</i>	60GB = 53%; 20GB = 47%
<i>BUNDLE</i>	Bundle = 4%; no bundle = 96%
<i>GAME</i>	Game = 6%; no game = 94%
<i>CONT</i>	Extra controller = 5%; no extra controller = 95%
<i>MOVIE</i>	Movie = 3%; no movie = 97%
<i>SHIP</i>	Mean = \$32; S.D. = \$32 (Shipping paid by seller in 27% of auctions)
<i>NUMBIDS</i>	Mean = 13; S.D. = 11
<i>TIME1</i>	Time1 = 6%; other times = 94%
<i>TIME2</i>	Time2 = 25%; other times = 75%
<i>TIME3</i>	Time3 = 37%; other times = 63%
<i>WKEND</i>	Weekend = 13%; weekday = 87%

### THE MODEL

In this study, regression analysis was used to explain variation in the final bid prices of PS3s based on the (eBay) supply of PS3s, the number of days until Christmas, as well as several other control variables. As described in the literature review section of this paper, this study hypothesizes that supply will be inversely related to the final bid and a price decline anomaly will be observable over the holiday season instead of over a day. The dependent variable represents the willingness-to-pay (*BID*). *BID* is the highest observed bid for items that received at least one bid. For items that did not sell, *BID* is the most any participating bidder was willing to pay. For items that did sell, the observed sale price (*BID*) might not reflect the highest willingness to pay because the winning bidder need only outbid the second highest bidder. Any amount that the winning bidder was willing to pay above what was required to win the auction is unobserved.

In addition to the independent variables of interest (the number of other competing auctions and the number of days until Christmas), there are other independent variables that must be included to avoid an omitted variable bias. Five of these variables are related to the characteristics of the PS3 and include the gigabytes, and whether the game system has a bundle, a game, a controller, and/or a movie. Further, prior research has identified several additional variables that affect final prices and/or bids in eBay auctions. These additional independent variables are



related to shipping costs; the number of bids; and when the auction ends. The product variables related to gigabytes and add-ons are expected to be positively related to the final bid. Based on the results of prior research, the number of bids variable is also expected to be positively related to the final bid, while the shipping costs variable is expected to be negative. Because the results of prior research on the effect of time on final bid/price have not been consistent, we do not hypothesize signs for the variables related to time the auction ends. More detailed discussion of the independent variables and their expected signs will follow.

The regression model is shown below. The expected sign of the coefficient appears in parentheses above the independent variable.

$$\begin{aligned}
 \text{BID}_i = & \beta_0 + \beta_1 \overset{(-)}{\text{SUPPLY}}_i + \beta_2 \overset{(+)}{\text{DAYS}}_i + \beta_3 \overset{(+)}{\text{GB}}_i \\
 & + \beta_4 \overset{(+)}{\text{BUNDLE}}_i + \beta_5 \overset{(+)}{\text{GAME}}_i + \beta_6 \overset{(+)}{\text{CONT}}_i \\
 & + \beta_7 \overset{(+)}{\text{MOVIE}}_i + \beta_8 \overset{(-)}{\text{SHIP}}_i + \beta_9 \overset{(+)}{\text{NUMBIDS}}_i \\
 & + \beta_{10} \text{TIME1}_i + \beta_{11} \text{TIME2}_i + \beta_{12} \text{TIME3}_i \\
 & + \beta_{13} \text{WKEND}_i
 \end{aligned} \tag{1}$$

Two supply variables were tested to determine the effect that the eBay supply of PS3s might have on final bid price. One supply variable (*SUPPLY1*) measures the total number of PS3 auctions ending in the hour before and after a particular auction. The other supply variable (*SUPPLY24*) is a broader measure that measures the total number of PS3 auctions ending within 24 hours of a particular auction. Studies by Melnik and Alm (2005) and McDonald and Slawson (2002) also measured supply as the number of auctions ending on the same day. The supply variables used in this model are limited in that the eBay supply of PS3s is only a small part of the total supply available. The market supply of PS3s would include those available in brick-and-mortar retailers like Toys-R-U's and GameStop, as well as other online retailers. Unfortunately, information about the total market supply of PS3s on a given day was not available. One might still hypothesize that the eBay supply of PS3s might be relevant if eBay bidders have customer allegiance to the site and limit their online purchases to eBay (as opposed to other auction or retail sites).

As discussed in the literature review section, the price decline anomaly is more likely to be observed over the course of the Christmas shopping season in that buyers might be more willing to pay higher prices earlier in the season to reduce the risk of not

being able to secure the product later in the season. As a result, we expect the number of days to Christmas (*DAYS*) to be directly related to the willingness-to-pay, such that the final bid is higher for PS3s auctioned earlier in the Christmas season.

A challenge with this analysis is that the product is not homogeneous. Consequently, the characteristics of each PS3 are expected to influence the final bid. The PS3 came in two basic models in 2006: 20GB and 60GB (which was called the Premium model). One would expect the 60GB model to command a higher price and, therefore, a higher bid. Since the dummy variable for the model is 1 for 60GB and 0 for 20GB, the sign of the coefficient for *GB* is expected to be positive. PlayStation auctions can also include "bundles." Some bundles are created by the seller and include additional games, videos, and controllers. Other bundles were included by the manufacturer and could include specified additional games and possibly another controller. PlayStations with bundles should command higher bids. This study does not distinguish between manufacturer or seller bundles. Independent of whether the PS3 comes with a bundle, some PS3s come with additional games, an additional controller, and/or additional movies. In other words, a PS3 may have a bundle and controller in addition to the bundle; or a PS3 may not have a bundle, but may only have an additional controller. If a PS3 has a bundle, additional games, an additional controller, and/or at least one movie, one would expect the bid to be higher. As a result, the coefficients for *BUNDLE*, *GAME*, *CONT*, and *MOVIE* are all expected to be positive.

When shipping costs are borne by the buyer, the buyer is likely to adjust the bid downward to reflect the additional costs (McDonald & Slawson, 2002; Melnik & Alm, 2005). Online sellers have the option of paying shipping costs themselves or requiring buyers to pay the shipping costs. Studies have shown that higher nominal shipping costs reduce the highest bid (McDonald & Slawson, 2002). Melnik and Alm (2005) found that a \$1 increase in shipping costs will decrease the willingness-to-pay by \$0.55. Consequently, the coefficient for *SHIP* is expected to be negative.

The bid price is expected to be positively related to the demand for PS3s. As a result, the coefficient for the variable related to the number of bids (*NUMBIDS*) should be positive.

The effect of time of day on final price or final bid has been ambiguous and may be affected by the type of buyer and type of product. Andrews and Benzing (2007) found higher prices in eBay auctions of used cars that ended in the evening (between 5:00 PM and midnight). McDonald and Slawson (2002)

found significantly lower high bids for auctions of collectible Barbie dolls ending between midnight and 4 AM. Melnik and Alm (2005) found that time of day was not significant in online auctions of certified coins, but higher bids were received for non-certified coins sold between midnight and 6 AM. Snir (2006) found that used laptops auctioned later in the day on eBay received a lower price than similar ones offered earlier in the day. To make comparison with Melnik and Alm (2005) easier, this study broke the day into six hour increments such that *TIME1* includes all auctions that ended between 12 AM and 6 AM Pacific time. The price decline anomaly observed in in-person auctions would not be related to time of day for PS3 Internet auctions because the auctions in this study are often rolling, multi-day auctions. There is no reason to believe that time of day will have any effect on the final bid.

Previous research on whether the final bid is higher for auctions ending on a weekend versus those ending during the week has yielded conflicting results. Standifird (2001) and Dewan and Hsu (2004) found that Internet auctions ending on the weekend had lower final bids and/or prices than auctions ending during the week. Melnik and Alm's (2005) study of noncertified coin auctions on the Internet found higher prices for auctions ending on the weekend. There is no reason to expect a weekend or weekday effect for PS3s during the holiday season.

## RESULTS

Two regressions were performed to determine which variables most significantly influenced the final bid on PS3s during the 2006 Christmas season. White's test statistic for heteroscedasticity was computed for the preliminary regression. The statistic was significant indicating that there was heteroscedasticity of an unknown cause. To correct for the understatement of the error, the regression was recomputed using White's (1980) heteroscedasticity-consistent standard errors and covariance methodology. Table 3 presents the OLS regression results. The correlation matrix of all independent variables is shown in Table 4.

The results for the first regression indicate that the characteristics of the PS3 as well as the shipping costs, eBay supply, and number of days until Christmas have a significant effect on the final bid price. As hypothesized (hypotheses #1 and #2), the final bid was inversely related to supply and directly related to the number of days until Christmas. The number of bids, time of day, and weekend variables had no significant effect on the high bid. The *NUMBIDS* variable represented the number of bids in an auction and is only partially representative of the

market demand for PS3s at a given time. Had data been available on the number of bidders instead of the number of bids, the results might have shown a significant demand effect.

The second regression is a variation of the first regression using *SUPPLY24* instead of *SUPPLY1*. *SUPPLY1* includes all PS3 auctions ending within one hour of an auction; *SUPPLY24* refers to all PS3 auctions ending within 24 hours of an auction. As shown in the first regression, the number of PS3 auctions ending in the hour before or after an auction (*SUPPLY1*) was inversely related to the willingness-to-pay. For every additional auction, the final bid was reduced \$1.38. If the supply variable was broadened to include all auctions that ended within 24 hours of an auction (*SUPPLY24*), the final bid was reduced by \$0.16 per auction. Although this may seem like a small nominal amount, the average number of auctions ending within 24 hours of an auction was an average of 253. This result supports hypothesis #1 that supply has an inverse relationship to the willingness-to-pay.

According to the results, buyers were willing to spend approximately \$156–\$159 more for the 60 gigabyte version of the PS3. Bundles, extra games and an extra controller also added value. In contrast, an extra movie did not show a statistically significant relationship to the final bid.

Shipping costs could be shifted to the buyer without a one-to-one reduction in the highest bid. For every dollar in shipping costs absorbed by the buyer, the seller only lost between \$0.30 and \$0.34. This means that it is in the seller's interest to shift shipping costs to the buyer. This result is similar to that observed by McDonald and Slawson (2002) and Melnik and Alm (2005).

Auctions that ended farther before Christmas got higher final bids than auctions ending nearer to Christmas. The coefficient for *DAYS* supports hypothesis #2, the "holiday price decline anomaly" for simultaneous, multi-day online auctions. As hypothesized, the willingness-to-pay was lower in later auctions of identical items. The positive coefficients in both regressions indicate that the final bid decreased by approximately \$12 per day as the number of days before Christmas decreased. The results are most directly comparable to Halcoussis and Mathews (2007) who reported a decline in the price paid for concert tickets as the auction's end date approached the concert date. In this study the price decline anomaly is consistent with buyer risk aversion. Buyers may be willing to pay a price premium earlier in the holiday shopping season to avoid the risk of not obtaining the item in time for Christmas or of paying a higher price later in the season. The "holiday price decline anomaly"

observed in this study may be stronger than that for most products because the PS3 game systems were in short supply during Christmas season 2006 and, thus, buyers faced greater uncertainty than they might face for other holiday gift items.

From a seller's perspective, the "holiday price decline anomaly" indicates that sellers of a product in short supply might experience higher bids earlier in the holiday season rather than later. It should be noted that, although the number of similar auctions on eBay was considered in the *SUPPLY* variable, we did not control for the total supply available through retail establishments and other auctions. In addition, the number of bidders was not measurable. Consequently, the observed price decline anomaly could be the result of an unobservable increase in total supply or a decrease in demand for PS3s as the holiday approached.

### CONCLUSION

This study shows that the willingness-to-pay in eBay auctions of PlayStation 3s during the 2006 Christmas season was significantly related to the eBay supply of PS3s and the number of days until Christmas. As hypothesized, the greater the number of PS3 auctions on eBay ending in the hour or 24 hours around an auction, the lower the high bid. The existence of a "holiday price decline anomaly" was also observed in that the high bid was lower for auctions that ended closer to Christmas.

According to the results of this study, sellers can obtain higher bids on limited-supply items auctioned earlier in the holiday season. The reason behind this behavior may be related to risk aversion. Gift buyers may be willing to pay a premium for a gift item that is in short supply to avoid the risk of paying more later. Also, those bidders who are purchasing Hanukah gifts are in the market earlier in the holiday season and, thus, might contribute to a holiday price decline anomaly by increasing market demand earlier in the traditional Christmas season.

Of course, one must recognize that some of the bidders are not purchasing the PS3 as a holiday gift, but are purchasing it for themselves for immediate use. Some "gamers" might be willing to pay more just to be the first to own the new version of a game system. In that case, there might be an observable price decline anomaly for any new and popular entertainment or technologically sophisticated item—especially one with limited availability. Based on the extent of such non-holiday gift purchases, the results of this study may overstate the holiday price decline anomaly effect. More study needs to be done to better understand how prices behave during the holiday season compared to non-holiday periods.

Economists could enhance their understanding of how markets work by examining how price is determined in online auctions. Areas of research that need further study include: 1) comparing the behavior of prices in online auctions to in-person auctions; 2) analyzing the behavior of prices during holiday and non-holiday seasons; and 3) studying the behavior of prices for different types of products. Compared to just a few years ago, much more information is available through market research databases supplied by eBay and other auction sites. Although these databases were designed to help sellers better understand their markets, they are ready-made for economists studying market behavior. During the next few years, we anticipate many other studies about online auction behavior. Hopefully, some will shed further light on the effect of auction supply on the willingness-to-pay as well as whether a "holiday price decline anomaly" exists for other products sold on Internet auction sites during the Christmas shopping season.

### REFERENCES

- Andrews, T. & Benzing, C. (2007). The determinants of price in internet auctions of used cars. *Atlantic Economic Journal*, 35(1), 43–57.
- Ashenfelter, O. C. (1989). How auctions work for wine and art. *Journal of Economic Perspectives*, 3(3), 23–36.
- Ashenfelter, O. C. & Genesove, D. (1992). Testing for price anomalies in real estate auctions. *American Economic Review (Papers and Proceedings)*, 80(2), 501–505.
- Beggs, A. & Graddy, K. (1997). Declining values and the afternoon effect: Evidence from art auctions. *Rand Journal of Economics*, 28(3), 544–565.
- Buccola, S. (1982). Price trends in livestock auctions. *American Journal of Agricultural Economics*, 64(1), 63–69.
- Chan, T. Y., Kadiyali, V., & Park, Y. H. (2007). Willingness to pay and competition on online auctions. *Journal of Marketing Research*, XLIV(May), 324–333.
- comScore. (2007). Holiday spending through Dec. 27 nears \$28 billion. Retrieved June 16, 2010, from [http://www.comscore.com/Press\\_Events/Press\\_Releases/2007/12/Holiday\\_Update\\_Dec\\_3](http://www.comscore.com/Press_Events/Press_Releases/2007/12/Holiday_Update_Dec_3).
- Dewan, S. & Hsu, V. (2004). Adverse selection in electronic markets: Evidence from online stamp auctions. *Journal of Industrial Economics*, 52(4), 497–516.
- Ginsburgh, V. & van Ours, J. C. (2007). On organizing a sequential auction: Results from a natural experiment by Christie's. *Oxford Economic Papers*, 59(1), 1–15.

- Halcoussis, D. & Mathews, T. (2007). EBay auctions for *Third Eye Blind* concert tickets. *Journal of Cultural Economics*, 31(1), 65–78.
- Houser, D. & Wooders, J. (2006). Reputation in auctions: Theory, and evidence from eBay. *Journal of Economics & Management Strategy*, 15(2), 353–369.
- Levy, D., Chen, H., Müller, G., Dutta, S. & Bergen, M. (2010). Holiday price rigidity and cost of price adjustment. *Economica*, 77(305), 172–198.
- Lucking-Reiley, D., Bryan, D., & Reeves, D. (2000). Pennies from eBay: The determinants of price in online auctions. Working Paper No. 00–W03, Vanderbilt University.
- McAfee, R. P. & Vincent, D. (1993). The declining price anomaly. *Journal of Economic Theory*, 60(1), 191–212.
- McDonald, C. G. & Slawson, V. C., Jr. (2002). Reputation in an internet auction market. *Economic Inquiry*, 40(3), 633–650.
- Melnik, M. I. & Alm, J. (2002). Does a seller's reputation matter? Evidence from eBay auctions. *Journal of Industrial Economics*, 50(3), 337–349.
- Melnik, M. I. & Alm, J. (2005). Seller reputation, information signals, and prices for heterogeneous coins on eBay. *Southern Economic Journal*, 72(2), 305–328.
- Müller, G., Bergen, M., Dutta, S. & Levy, D. (2006). Private label price rigidity during holiday periods. *Applied Economics Letters*, 13(1), 57–62.
- Müller, G., Bergen, M., Dutta, S. & Levy, D. (2007). Non-price rigidity and the cost of adjustment. *Managerial and Decision Economics*. 28(7), 817–832.
- Raviv, Y. (2006). New evidence on price anomalies in sequential auctions: Used cars in New Jersey. *Journal of Business & Economic Statistics*, 24(3), 301–312.
- Snir, E. M. (2006). Online auctions enabling the secondary computer market. *Information Technology & Management*, 7(3), 213–234.
- Standifird, S. S. (2001). Reputation and e-commerce: EBay auctions and the asymmetrical impact of positive and negative ratings. *Journal of Management*, 27, 279–295.
- U.S. Department of Commerce. (2010). *U.S. Census Bureau News*. May 18. Table 3. Estimated Quarterly U.S. Retail Sales: Total and E-commerce. Available on <http://www.census.gov/retail>.
- van den Berg, G., van Ours, J. C., & Pradhan, M. P. (2001). The declining price anomaly in Dutch rose auctions. *American Economic Review*, 91(4), 1055–1062.
- White, H. (1980). A heteroscedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity. *Econometrica*, 48(4), 817–838.

**Table 3**  
**Regression Results Using White Heteroscedasticity-Consistent Standard Errors and Covariance**  
**Dependent Variable: *BID***

Independent Variable	(1)	(2)
<i>Intercept</i>	448.40*** (13.30)	462.25*** (13.46)
<i>SUPPLY1</i>	-1.38*** ( 0.24)	
<i>SUPPLY24</i>		-0.16*** (0.03)
<i>DAYS</i>	12.41*** (0.48)	12.20*** (0.47)
<i>GB</i>	159.03*** (7.26)	155.88*** (7.36)
<i>BUNDLE</i>	152.48*** (21.89)	152.27*** (22.16)
<i>GAME</i>	125.01*** (17.18)	122.75*** (17.37)
<i>CONT</i>	40.77** (17.00)	39.34** (17.21)
<i>MOVIE</i>	27.04 (29.05)	25.64 (29.08)
<i>SHIP</i>	-0.34*** (0.11)	-0.30*** (0.11)
<i>NUMBIDS</i>	0.06 (0.36)	0.01 (0.36)
<i>TIME1</i>	9.01 (18.22)	7.18 (18.27)
<i>TIME2</i>	-5.86 (9.28)	-6.16 (9.30)
<i>TIME3</i>	-10.88 (8.59)	-8.35 (8.60)
<i>WKEND</i>	-7.01 (9.03)	-8.00 (9.07)
Adjusted $R^2$	0.2924	0.2941
SE of Regression	213.8003	213.9087
F-statistic	121.6531	121.2348
Prob (F-stat)	0.0000	0.0000

Note: The standard error appears in parentheses below each coefficient.  
 \*\*\* indicates significance at the 1% level.  
 \*\* indicates significance at the 5% level.  
 \* indicates significance at the 10% level.

Table 4: Correlation Coefficients of Independent Variables

	<u>SUPPLY24</u>	<u>DAYS</u>	<u>GB</u>	<u>BUNDLE</u>	<u>GAME</u>	<u>CONT</u>	<u>MOVIE</u>	<u>SHIP</u>	<u>NUMBIDS</u>	<u>TIME1</u>	<u>TIME2</u>	<u>TIME3</u>	<u>WKEND</u>
<i>SUPPLY1</i>	0.624 (0.000)												
<i>SUPPLY24</i>	0.401 (0.000)	0.347 (0.000)											
<i>DAYS</i>	-0.046 (0.005)	-0.107 (0.000)	-0.128 (0.000)										
<i>GB</i>	-0.007 (0.656)	-0.016 (0.327)	0.028 (0.086)	0.011 (0.499)									
<i>BUNDLE</i>	0.040 (0.014)	0.011 (0.498)	0.058 (0.000)	-0.016 (0.314)	0.090 (0.000)								
<i>GAME</i>	0.042 (0.010)	0.016 (0.311)	0.071 (0.000)	0.024 (0.134)	-0.020 (0.222)	0.259 (0.000)							
<i>CONT</i>	0.045 (0.005)	0.032 (0.048)	0.019 (0.240)	0.024 (0.146)	0.005 (0.762)	0.085 (0.000)	0.021 (0.196)						
<i>MOVIE</i>	-0.061 (0.000)	-0.002 (0.887)	-0.106 (0.000)	-0.002 (0.888)	-0.011 (0.498)	-0.002 (0.890)	0.003 (0.838)	0.002 (0.878)					
<i>SHIP</i>	0.053 (0.001)	0.019 (0.245)	0.061 (0.000)	0.088 (0.000)	0.034 (0.034)	0.045 (0.005)	0.040 (0.015)	-0.007 (0.649)	-0.063 (0.000)				
<i>NUMBIDS</i>	0.024 (0.143)	-0.003 (0.864)	0.006 (0.716)	0.003 (0.832)	0.035 (0.029)	0.014 (0.401)	0.009 (0.575)	0.005 (0.738)	-0.001 (0.975)	0.015 (0.344)			
<i>TIME1</i>	0.043 (0.008)	0.014 (0.396)	0.039 (0.015)	-0.016 (0.330)	-0.003 (0.841)	0.012 (0.476)	0.035 (0.030)	-0.002 (0.924)	-0.013 (0.435)	0.020 (0.229)	-0.142 (0.000)		
<i>TIME2</i>	-0.0040 (0.015)	0.016 (0.339)	0.010 (0.553)	-0.006 (0.717)	0.009 (0.595)	0.001 (0.949)	-0.012 (0.467)	-0.014 (0.386)	-0.000 (0.992)	-0.022 (0.179)	-0.187 (0.000)	-0.449 (0.000)	
<i>TIME3</i>	0.001 (0.931)	-0.016 (0.329)	-0.005 (0.774)	0.007 (0.646)	-0.001 (0.950)	0.008 (0.606)	0.014 (0.402)	-0.005 (0.747)	0.018 (0.257)	-0.013 (0.438)	0.018 (0.257)	0.162 (0.000)	-0.055 (0.001)

# The p-value is shown in parentheses underneath the Pearson correlation coefficient. A p-value equal to or less than 0.01 indicates significance at the 1% level; 0.05 indicates significance at the 5% level; 0.10 indicates significance at the 10% level.

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# TOWARD AN UNDERSTANDING OF AUDIT FIRM ROTATION AS PUBLIC POLICY: A HISTORICAL AND THEORETICAL PERSPECTIVE

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## ABSTRACT

In the aftermath of the recent financial reporting scandals, policy makers have suggested that audit firm rotation may be one way to reduce fraudulent financial reporting. The Sarbanes–Oxley Act of 2002 (SOX) requires that partners and managers, but not audit firms, be periodically rotated off the audits of publicly traded companies. A historical review finds the traditional arguments for and against the rotation of audit firms ad hoc and lacking in theoretical substance. This paper considers a prominent criminology theory, differential reinforcement theory, as a rationale for requiring rotation of audit firms.

## INTRODUCTION

Recent audit and accounting failures regarding Enron, WorldCom, Tyco International, Global Crossing, Quest Communications, Adelphia Communications, ImClone, Xerox, HealthSouth, and Royal Ahold highlight the vulnerability of the financial reporting system and weaknesses in the audit process. It is estimated that fraud affects about 75% of U.S. companies, and costs approximately \$994 billion annually (KPMG Forensics, 2004, p. 4; ACFE, 2008). While fraudulent financial reporting is one of the least frequently occurring occupational fraud schemes, it has the largest median loss, \$2 million (ACFE, 2008). Most occupational fraud schemes involve either the accounting department or upper management (ACFE, 2008, p. 5).

Public policy makers have proposed requiring the mandatory rotation of audit firms as a partial solution to the pervasive problem of fraud in organizations (see, for example, GAO, 2003; Raiborn, Schorg, & Massoud, 2006). Indeed, in 2007, the Internal Revenue Service proposed rotation of audit firms for non-profits (IRS, 2007). Advocates of mandatory rotation of audit firms achieved a small measure of success with the passage of the Sarbanes–Oxley Act (SOX), which requires rotation of audit partners, though not audit firms (15 U.S.C. 78j-1(j)).

While public policy makers have proposed mandatory rotation of audit firms, audit firms and the American Institute of Certified Public Accountants (AICPA) have opposed such a requirement (see, for example, GAO, 2003). Unfortunately, the arguments both for and against mandatory rotation of audit firms lack historical and theoretical substance. For example, a traditional argument for mandatory rotation of audit firms is simply that it provides for a “fresh look” at an organization’s internal controls and

financial reporting, without any support for whether this is or might be true (see, for example, GAO, 2003).

This article adds to the audit literature by providing a rationale for audit firm rotation that is based on grounded theory, specifically criminology’s differential reinforcement theory. This article provides a history of mandatory audit firm rotation proposals. It then considers differential reinforcement as a rationale for legislation requiring auditor rotation.<sup>1</sup> The article concludes with a discussion of mandatory audit firm rotation based on the historical and comparative analysis.

## A HISTORY OF MANDATORY AUDIT FIRM ROTATION

The history of arguments for and against mandatory audit firm rotation shows that arguments regarding mandatory audit firm rotation are based on informal perceptions of human behavior, are ad hoc, and lack theoretical substance. The history of arguments for and against mandatory audit firm rotation begins in the aftermath of the McKesson Robbins Case of the 1930s, where audited financial

<sup>1</sup> A review of the existing literature indicates a broad mixture of behavioral and economic reasons for auditor changes other than mandatory audit firm rotation. For example, Beattie and Fearnley (1998a, b) suggest purely economic factors, such as industry specialization, drive audit firm changes; others suggest audit costs drive audit firm changes (Beattie & Fearnley, 1995); still others suggest quality drives such changes (Menon & Williams, 1991); and others suggest opinion shopping (Lennox, 2000, 2003; Vinten, 2003). A review of this literature is beyond the scope of this paper.



statements of a non-existent drug company showed assets of \$19 million and profits of \$1.8 million produced an atmosphere where change in accounting procedures appeared necessary. Not only did the American Institute of Accountants (the predecessor to the AICPA) establish the Committee on Auditing Procedure (later the Auditing Standards Board) but, in hearings before the Securities and Exchange Commission (SEC) in 1939, the subject of mandatory audit firm rotation was first mentioned (Hoyle, 1978). Although not seriously considered at that time, the issue of mandatory audit firm rotation continued to resonate. In 1958 N. Loyall McLaren listed the potential benefits of audit firm rotation, including:

- A fresh viewpoint is desirable at more or less frequent intervals.
- New blood ensures greater alertness.
- Long-established familiarity between the auditor's representatives and the client's employees may lead to collusion.
- Mistakes of previous auditors may be detected and corrected.

McLaren then proceeded to argue why each potential benefit did not make sense. His primary arguments relied on the integrity of those hired into the accounting profession and the audit standards that made collusion between the firm and its auditors almost impossible (McLaren, 1958).

Following McLaren, the arguments against auditor rotation have generally, like McLaren, focused on the integrity of auditors and the profession. For example, almost ten years later, in 1967, an editorial in the *Journal of Accountancy* decried the idea of mandatory audit firm rotation. The past president of the AICPA, J. S. Seidman, argued in his response that in "an age of consumerism" the accounting profession's first duty is to the shareholder, not management (Seidman & Robbins, 1967, p. 30). Seidman went on to say that "company satisfaction with the auditor may be the occasion for public dissatisfaction" (p. 30). It is this attitude that is given some credit for the calls for mandatory audit firm rotation (Hoyle, 1978).

Following McLaren, the arguments for auditor rotation have generally been based on the assumption that long-term auditors may, for unspecified reasons, lose their alertness and may collude with management. For example, in 1978 the AICPA Commission on Auditors' Responsibility (Cohen Commission, 1978) recommended changes in the accounting profession and considered mandatory audit firm rotation because "the tenure of the independent auditor would be limited" and therefore "the incentive for resisting pressure from management would be increased" and because mandatory audit firm rotation would "bring a fresh

viewpoint" (Report of the Commission on Auditors' Responsibility, 1978, p. 108). However, the Commission cited several reasons to not require firm rotation, including the findings that continuous relationships between audit firms and clients was beneficial; and, in a study of cases where there was substandard auditor performance, the substandard performance appeared to occur much more often in the first or second year of an audit rather than in the later years of audits. The Commission did recommend audit personnel rotation due to "over familiarity" or a close relationship between client and audit firm (p. 109).

And some 37 years after McLaren, in 1995, Congressman John Dingell asked the General Accounting Office to evaluate recommendations made for improvements of audits of public companies. The GAO considered the findings of 37 separate study groups and concluded that while most issues had been addressed, there were five major unresolved issues including "auditor independence" (Carmichael, 1997, p. 18). Although the GAO considered mandatory auditor firm rotation, it was rejected because "the continuing auditor relationships outweighed the risk" (Carmichael, 1997, p. 22).

At first, attitudes seemed to change following the scandals at Enron, WorldCom and others. In response to these audit failures, Congress passed the Corporate and Auditing Accountability, Responsibility, and Transparency Act of 2002 (Sarbanes-Oxley Act; 15 U.S.C. 78j-1(j)). While SOX did not mandate the rotation of audit firms, the arguments made during the drafting and after the drafting of SOX are instructive and relevant.

For example, according to Congressman LaFalce H.R. REP. NO. 107-414, at 55 (2002), the benefits of mandating audit firm rotation change would include:

- A new audit firm would bring to bear skepticism and fresh perspective that a long-term auditor may lack;
- Second, auditors tend to rely excessively on prior years' working papers, including prior tests of client's internal control structure, particularly if fees are concerned;
- Long-time auditors may come to believe that they understand the totality of the client's issues, and may look for those issues in the next audit rather than staying open to the other possibilities; and
- An auditor may place less emphasis on retaining a client, at the cost of a compromised audit, if the auditor knows the engagement will end after several years.

In 2003, the GAO produced *The Required Study on the Potential Effects of Mandatory Audit Firm Rotation*. The study included testimony that the

mandatory rotation of audit firms was necessary to maintain the independence and objectivity of financial statement audits, as well as statements that rotation could be disruptive and not cost-effective. In its summary, the report recommended that mandatory audit firm rotation not be required at that time. The report cited the many changes required by SOX and the need to implement those changes before taking additional steps, and the results of a survey that indicated the cost of such a requirement could outweigh the benefit.

As companies and audit firms have absorbed the changes required by SOX, the issue of mandatory audit firm rotation has re-surfaced. Raiborn et al, (2006) published a list of reasons supporting mandatory audit firm rotation. Reasons pertinent to this paper include:

- Decreases the development of friendships and “coziness” between audit firm and client employees.
- Decreases the potential for auditors to succumb to management pressure to use questionable accounting techniques or accept compromised accounting procedures.
- Increases the potential for audit firms to be more vocal about disagreeing with questionable client practices.
- Increases audit quality by providing a “fresh look” at client reporting practices.
- Increases audit quality because the current audit firm would be aware that a successor auditor would be more likely to detect and disclose predecessor auditor errors or inefficiencies (p. 40).

Evidence that this position is gaining support may be found in the draft Good Governance Practices for 501(c)(3) Organizations in which the U.S. Internal Revenue Service recommended that: “The auditing firm should be changed periodically (e.g., every five years) to ensure a fresh look at the financial statements.”

In sum, the theoretical arguments for and against the rotation of audit firms are based on informal perceptions of human behavior and lack theoretical substance, and roughly follow the model that mandatory audit firm rotation is not necessary because auditors and audit standards have integrity and auditors work for shareholders and not management or that mandatory audit firm rotation is necessary as long-term auditors may lose their alertness and may collude with management.

## DIFFERENTIAL REINFORCEMENT THEORY OF CRIMINAL BEHAVIOR

Theoretical substance may be added to the debate on mandatory audit firm rotation by applying differential reinforcement theory, a theory of criminal behavior that is robust and well grounded. Differential reinforcement theory traces its roots to criminologists’ responses to the “stinging criticism” in the 1930s that criminology was not scientific. Since then, criminologists have sought to develop an understanding of criminal behavior that is based on observed behavior, biological origins, and behavioral models (such as operant conditioning) (see, e.g., Hoffman, 2003; Matsueda, 1988; Sutherland and Cressey, 1974; and Sutherland, 1939). The theory of criminal behavior most relevant to fraud in organizations is differential reinforcement theory.

Sutherland’s theory of differential association (1939, 1947), a precursor to differential reinforcement theory, attributed the cause of criminal activity to the social context of individuals, rather than to the individuals themselves. It stated that criminal behavior is learned through interaction with other persons, predominantly within primary groups (family, peers, and friends). This learning process included not only the specific techniques and skills for committing crimes but more importantly, the motives, rationalizations, and attitudes as to whether rules should be followed or broken (Matsueda, 1988).

Burgess and Akers (1966) revised Sutherland’s theory of differential association to differential reinforcement by including the impact of operant conditioning and social learning theory on behavior. Operant conditioning is a behavioristic theory originated by B. F. Skinner (Schunk, 2004). Skinner used the term to describe the consequences of a particular behavior on the future occurrence of that behavior. Skinner contended that operant conditioning is a type of learning which involves modifying a behavior (increasing the behavior) by following it with a reward. Conversely one could decrease a behavior by following it with a punishment. One of the theory’s major principles is that behavior is determined by the environmental consequences it produces for the individual involved (Blackburn, 1993; Hollin, 1989). The theory postulates that behavior that produces consequences that are beneficial will increase in frequency (i.e., fraud). Behavior, which produces undesirable consequences (being arrested), will decrease in frequency. The behavior being punished causes the behavior to occur with less frequency (Schunk, 2004). Behavior therefore operates on the environment to produce results that are either reinforcing or punishing.

If a person engaging in criminal activity was rewarded (i.e., increase in finances, job promotion, or accolades from colleagues), the individual is likely to engage in further criminal activity (Feldman, 1993). If the consequences were negative (e.g., being fired, arrested, demoted at work, or loss of prestige), the frequency of future criminal behavior should be reduced (Blackburn, 1993). Skinner and others have applied operant conditioning principles to such domains as leadership and organizational development, education, social behaviors, and business practices (DeGrandpre, 2000; Komaki, 1994; and Kohn, 1993).

According to Akers (1985), crime is initially learned through direct imitation or modeling of deviant peers. The subsequent likelihood of criminal behavior is determined by differential reinforcement, i.e., the rewards and punishments following the act. Reinforcement can be direct to the individual or indirect, where observing another's criminal behavior being reinforced will reinforce the observer's own criminal behavior (Matsueda, 1988).

Burgess and Akers (1966) summarized this process in seven stages. These stages reorganize Sutherland's nine propositions of behavior and add the concept of reinforcement:

1. Criminal behavior is learned according to the principles of operant conditioning or imitation.
2. Criminal behavior is learned both in nonsocial situations that are reinforcing or discriminating and through social interaction when the behavior of others is reinforcing or discriminating.
3. The principal learning of criminal behavior occurs in those groups that comprise the individual's major source of reinforcement.
4. The learning of criminal behavior is a function of the effective and available reinforcers and the existing reinforcement contingencies.
5. The type of learning, including techniques, attitudes, and avoidance procedures, and their frequency of occurrence depends on the effective and available reinforcers and the rules and norms by which these reinforcers are applied.
6. Criminal behavior is a function of norms which are discriminative for criminal behavior.
7. The strength of criminal behavior is a direct result of the amount, frequency, and probability of its reinforcement (p. 137).

According to Akers (1985), differential reinforcement is best applied to behavior within groups from which individuals receive reinforcement. The individual learns criminal behavior from others and then this behavior is reinforced. The level of positive reinforcement will determine whether the behavior continues.

The corporate culture is an important personal environment where individuals of the group influence, in part, an individual's decision-making process. Sutherland (1947) highlighted the significance of differential associations by suggesting that the priority, frequency, duration, and intensity of associations within the environment will vary. Furthermore, those associations that "are exposed first (priority), more frequently, for a longer time (duration), and with greater intensity (importance)" will have a greater impact upon the person (Akers, 2000, p. 73).

Differential association theory has been underutilized for interpreting white-collar crimes and helps explain the importance of audit firm rotation. Traditionally, differential association theory defines white-collar crime as a result of the learned interpretations and experiences that occur within the workplace (Sutherland, 1949). In particular, differential association theory has scarcely been applied to explain the occurrence of white-collar crime (Benson 1985; Hollinger 1991; and Vaughan, 1996). At the core of differential association are people working in a social environment where individuals are constantly receiving feedback from colleagues. This very nature of working in a social environment with endless feedback can engender deviant behavior and fraud. Implementing audit firm rotation will be one way to eliminate a constant reinforcement in a social environment which can lead to criminal behavior according to differential association theory.

## DISCUSSION

In the aftermath of a significant number of fraudulent financial reporting cases and related audit failures, Congress and regulatory agencies enacted legislation and regulations to reduce the likelihood of a reoccurrence. The Sarbanes-Oxley Act requires only that certain individual auditors (partners and managers) be rotated off audit engagements every five to seven years. While this approach can break up inappropriate relationships between individual auditors and management, it does not address the influence of the public accounting firm's culture on inappropriate auditor behavior. In short, rotating only individual auditors does not change the underlying culture and reinforcers of the audit firm.

Starting in the 1970s, large public accounting firms began to increase the emphasis on client relations—employees who could generate and retain clients had a better chance of being admitted to partnership. The need to make clients happy was continually reinforced, even at the partner level. Junior partners, such as David Duncan at Arthur

Andersen, were acutely aware of the need to serve large clients to retain their partnership interests.<sup>2</sup> As long as this reward structure is reinforced within the firm, it is questionable whether merely rotating individual auditors while retaining the audit firm will be effective.

Consistent with differential reinforcement theory, mandating auditor rotation by firm has the advantage of lessening the influence of client retention as a reinforcer. Audit clients coming and going will become a normal process for CPA firms. Firms will expect that partners will "lose" clients. Further, the mandated shorter-term relationship will make each client less financially valuable to the firm. An auditor who "loses" a client will only cost his/her firm fees for the next several years, rather than losing an open-ended annuity. Consistent with differential reinforcement theory and the findings of Bamber and Iyer (2007), mandatory auditor firm rotation would lessen auditor identification with the auditee and lessen the influence of the client on the auditor. This, coupled with Sarbanes-Oxley prohibition against providing consulting services to publicly traded audit clients, means the loss of each audit client is less of a financial problem. In turn, this reduces client leverage and the potential for auditors to succumb to management pressures and increases the potential for audit firms to disagree with questionable client practices.

Mandatory audit firm rotation may also shape client behavior. Currently, if a client is unhappy with their audit firm, they change firms rather than continue to put up with the problem for the foreseeable future. However, if firm rotation is mandatory, the client is looking at a relatively short time before having to change audit firms. Given this, clients may be more likely to stay to reduce auditor changes and transaction costs. Since clients may be less likely to change auditors with whom they are unhappy, client leverage would seem to be reduced, which would, in turn, likely reduce the probability of creating a deviant subgroup in which fraud may occur. When audit firms remain with a client for extended periods of time, it is believed that the auditor will become too familiar with the client and will lose their "honest disinterestedness" (Morrill, 2008, p. 63). It is also believed that over time, an auditor's independence decreases as "friendships develop, the auditor becomes too closely identified with the interests of client management, the audit plan becomes stale, or the auditor becomes reluctant to make decisions that indicate that past decisions

<sup>2</sup> A description of this change in culture at Arthur Andersen can be found in Squires, Smith, McDougall, and Yeack (2003).

were incorrect" (Morrill, 2008, p. 63). Indeed, in a study of 257 CPAs, Bamber and Iyer "find that auditors do identify with their clients and that auditors who identify more with a client are more likely to acquiesce to the client-preferred position" (2007, p. 1).

In addition to Bamber and Iyer's work, a possible example from the field of the application of differential reinforcement theory to auditors is the Arthur Andersen/Enron audit failure. The impairment of independence due to familiarity and friendships occurred with Arthur Andersen and Enron before the two companies collapsed. "Andersen auditors and consultants were given permanent office space at Enron. They shared in office birthdays, frequented lunchtime parties...people just thought they were Enron employees" (Herrick & Barrionuevo, 2002). This familiarity and development of friendships between the audit staff and client created an environment where management could influence the auditors' decisions and issue fraudulent financial statements. However, if Enron had been required to rotate their audit firm periodically, perhaps the new firm would have detected the fraud and issued a significantly different opinion of the financial statements.

## CONCLUSION

The recent accounting and auditing scandals have renewed interest in public policy requiring mandatory rotation of audit firms. An analysis of public policy experience with mandatory audit firm rotation is inconclusive. Of the ten countries that have mandated audit firm rotation, five no longer require it. The European Union allows its members to mandate firm rotation, but does not require it. The Sarbanes-Oxley Act mandates rotation of audit partners and managers, but not the firms. On the other hand, the IRS recently issued a guidance draft recommending the rotation of audit firms for non-profit organizations.

The traditional arguments for and against audit firm rotation have remained unchanged for almost 70 years and lack theoretical substance. However, the theory of differential reinforcement suggests that rotation of individual auditors may not be sufficient, and that mandatory rotation of audit firms may be necessary.

When only individual auditors are rotated off audit engagements, the audit firm's culture and reinforcers of potentially deviant behavior remain in place. Only the mandatory rotation of audit firms may lessen the amount, frequency, and probability of reinforcement of antithetical behavior by a) reducing the pressure of audit firms to retain clients no matter

what it costs the firm in terms of audit quality, b) ensuring that client-firm relations at all levels are temporary (which reduces the time in which the client may teach the firm antithetical behavior), c) incentivizing clients to stay with firms even if the clients are not happy with the "tough" auditors (as the relationship is temporary and the present value of the benefits of changing auditors who will change in a few years or less may not outweigh the transaction costs of changing auditors), and d) lessen auditor identification with the auditee and lessen the influence of the client on the auditor.

This paper adds theoretical substance to discussion of how long-term relationships between audit firms and clients influence auditor behavior. It concludes that there is a substantial incremental benefit to audit firm rotation. It notes that there are arguments against audit rotation that go beyond human behavior, such as increased cost to clients and the potential for errors when new audit firms adjust to their clients. These costs should be weighed against the benefits found in our analysis in determining appropriate policy.

#### REFERENCES

- Akers, R. (1985). *Deviant behavior: A social learning approach*. Belmont, CA: Wadsworth.
- \_\_\_\_\_. (2000). *Criminological theories: Introduction, evaluation, and application*. Los Angeles: Roxbury.
- Association of Certified Fraud Examiners, Inc. (ACFE). (2008). *2008 Report to the Nation on Occupational Fraud & Abuse*. Austin, TX: ACFE.
- Bamber, E. M., and Iyer, V.M. (2007). Auditors' identification with their clients and its effect on auditors' objectivity. *Auditing*, 26(2), 1-24.
- Beattie, V. A. & Fearnley, S. (1995). The importance of audit firm characteristics and the drivers of audit change in U.K. listed companies. *Accounting and Business Research*, 25(100), 227-239.
- \_\_\_\_\_. (1998a). Auditor changes and tendering—U.K. interview evidence. *Accounting, Auditing and Accountability Journal*, 11 (1), 72-98.
- \_\_\_\_\_. (1998b). Audit market competition: Auditor changes and the impact of tendering. *British Accounting Review*, 30(3), 261-289.
- Benson, M. L. (1985). Denying the guilty mind: Accounting for involvement in white-collar crime. *Criminology*, 23(4), 583-607.
- Blackburn, R. (1993). *The psychology of criminal conduct: Theory, research and practice*. Toronto: John Wiley & Sons.
- Burgess, R. & Akers, R. (1966). A differential association-reinforcement theory of criminal behavior. *Social Problems*, 14(2), 128-147.
- Carmichael, D. (1997). Report card on the accounting profession. *The CPA Journal*, 67(1), 18-24.
- DeGrandpre, R. (2000). A science of meaning: Can behaviorism bring meaning to psychological science? *American Psychologist*, 55(7), 721-739.
- Feldman, P. (1993). *The psychology of crime a social science textbook*. Cambridge: Cambridge University Press.
- GAO. (2003). *Public accounting firms: Required study on the potential effects of mandatory audit firm rotation* (GAO-04-216). Washington, D.C.: U. S. Government Accountability Office.
- Herrick, T., & Barrionuevo, A. (2002, January 21). Were auditor and client too close to knit? *The Wall Street Journal*, p. C1.
- Hoffman, J. (2003). A contextual analysis of differential association, social control, and strain theories of delinquency. *Social Forces*, 81(3), 753-785.
- Hollin, C. (1989). *Psychology and crime: An introduction to criminological psychology*. New York: Routledge.
- Hollinger, R. C. (1991). Neutralizing in the workplace: An empirical analysis of property theft and production deviance. *Deviant Behavior*, 12(2), 169-202.
- Hoyle, J. (1978). Mandatory auditor rotation: The arguments and an alternative. *Journal of Accountancy*, 145(5), 69-78.
- Internal Revenue Service. (2007). *Good governance practices for 501(c)(3) organizations*. Retrieved on 10/17/2007 from [http://www.irs.gov/pub/irs-tege/good\\_governance\\_practices.pdf](http://www.irs.gov/pub/irs-tege/good_governance_practices.pdf).
- Kohn, A. (1993). *Punished by rewards*. New York: Plenum Press.
- Komaki, J. L. (1994). Emergence of the operant model of effective supervision or how an operant conditioner got hooked on leadership. *Leadership & Organization Development Journal*, 15(5), 27-32.
- KPMG Forensics (2004). *Fraud survey 2003*. Retrieved on November 15, 2007 from [http://www.kpmg.com/aci/docs/surveys/Fraud%20Survey\\_040855\\_R5.pdf](http://www.kpmg.com/aci/docs/surveys/Fraud%20Survey_040855_R5.pdf).
- Lennox, C. (2000). Do companies successfully engage in opinion shopping? Evidence from the U.K. *Journal of Accounting and Economics*, 29(3), 321-337.
- \_\_\_\_\_. (2003). *Opinion shopping and the role of audit committees when audit firms are dismissed: The U.S. experience*. Glasgow,

- Scotland: Institute of Chartered Accountants of Scotland.
- Matsueda, R. L. (1988). The current state of differential association theory. *Crime and Delinquency*, 34(3), 277–306.
- McLaren, L. (1958). Arguments for rotation. *The Journal of Accountancy*, 106(41), 41–44 .
- Menon, K. & Williams, D. D. (1991). Auditor credibility and initial public offerings. *The Accounting Review*, 66(2), 313–332.
- Morrill, J. (2008, September). Research on rotation. *CA Magazine*, 141(7), 63–65.
- Raiborn, C., Schorg, C. A., & Massoud, M. (2006). Should auditor rotation be mandatory? *Journal of Corporate Accounting & Finance*, 17(4), 37–49.
- Report of the Commission on Auditors' Responsibilities—The Cohen Commission. (1978). Report, conclusions, and recommendations. New York: American Institute of Certified Public Accountants.
- Sarbanes–Oxley Act of 2002, P.L. 107-204, 116 Stat 745, 15 U.S.C. 78j-1(j).
- Schunk, D. (2004). *Learning theories: An educational perspective*. Upper Saddle River: New Jersey.
- Seidman, J. S., & Robbins, J. A. (1967). Letters to the journal. *Journal of Accountancy*, 123(5), 30–32.
- Squires, S., Smith, C., McDougall, L., & Yeack, W. (2003). *Inside Arthur Andersen: Shifting values, unexpected consequences*. Upper Saddle River, NJ: Pearson Education.
- Sutherland, E. (1939). *Principles of criminology* (3<sup>rd</sup> ed.). Philadelphia, PA: Lippincott.
- \_\_\_\_\_. (1947). *Principles of criminology* (4<sup>th</sup> ed.). Philadelphia, PA: Lippincott.
- \_\_\_\_\_. (1949). *White-collar crime*. New York: Holt.
- Sutherland, E., & Cressey, D. (1974). *Principles of criminology* (8<sup>th</sup> ed.), Philadelphia, PA: Lippincott.
- Vaughan, D. (1996). *The challenger launch decision*. Chicago: University Chicago Press.
- Vinten, G. (2003). Opinion shopping and the role of audit committees when audit firms are dismissed: the U.S. experience, *Managerial Auditing Journal*, 18(6/7), 618.

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## GOALS AND LEARNING OBJECTIVES FOR CAPSTONE BUSINESS COURSES

Donald Mong

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### ABSTRACT

What learning should occur in an undergraduate capstone business course? I examine a century of course history to identify five learning goals: (1) to integrate students' prior functional learning; (2) to teach students to work within uncertainty; (3) to provide the CEO's perspective on managing companies; (4) to analyze strategic models; and (5) to reinforce each student's functional business skills. I also examine a number of learning objectives that have sprung from those goals and the importance of prioritizing coverage to prepare today's students for future challenges.

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### INTRODUCTION

As its name implies, the capstone business course is the last course that undergraduate business students take before graduation. Capstone instructors rightfully see themselves as the last line of preparation for jobs and advanced degree programs and want to provide students with all the learning needed for success in those future endeavors. Capstone literature is thus filled with a wide variety of learning goals and objectives, and it is easy for instructors to become overwhelmed with their sheer volume. Before designing capstone courses, instructors must therefore understand the many choices available to them.

I examine a century of capstone course history to identify five learning goals: (1) to integrate students' prior functional learning; (2) to teach students to work within uncertainty; (3) to provide the CEO's perspective on managing companies; (4) to analyze strategic models; and (5) to reinforce each student's functional business skills. I also examine a number of learning objectives that have sprung from those goals and the importance of prioritizing coverage to prepare today's students for future challenges. I present a detailed discussion of the capstone goals and objectives in the sections that follow and summarize those goals and objectives in Figure 1.

### INTEGRATION AND UNCERTAINTY

Arben (1997) looked at the very first capstone business course, which was taught at the graduate level in 1912. Arch Shaw, the first instructor, created a pedagogy that used guest CEOs presenting business problems from their own companies. Students then proposed and debated interdisciplinary solutions to those problems. In the process, Shaw believed that students developed

business policies to prevent or solve similar problems in the future. Shaw thus named his course business policy, a name by which many of today's graduate and undergraduate capstone courses are still known.

Arben emphasized that Shaw's primary learning goal was to integrate all of a student's prior functional learning. Shaw's classes intentionally mixed students of different functional majors, which today might be accounting, economics, entrepreneurship, finance, information systems, management, and marketing. These differing perspectives in debates helped each student to integrate his or her major area of learning with those of other areas of the curriculum and to develop an interdisciplinary approach to business matters.

Eldredge and Galloway (1983) reported on the state of capstone business courses after landmark reports by Gordon and Howell (1959) and Pierson (1959) had recommended that all business schools offer such courses and after the Association to Advance Collegiate Schools of Business (AACSB) had made such courses mandatory in 1969. The resulting AACSB standard required the capstone course to be "a study of administrative processes under conditions of uncertainty including integrating analysis and policy determination at the overall management level." Both the wording of that standard and the findings of Eldredge and Galloway's survey of 198 AACSB schools confirmed the importance of the integration learning goal. Eldredge and Galloway found that virtually all of those 198 schools taught the capstone course only to seniors and only after all other functional learning had been completed.

The AACSB standard also revealed a second capstone learning goal, which was to work within uncertain situations. Before that standard was adopted, Denning (1968) had studied both Harvard's and Carnegie Institute's capstone courses and had



found that a common learning goal was to conceptually analyze problems within uncertainty. Later, Brouthers, Andreissen, and Nicolaes (1998) noted how an increasingly entrepreneurial economy required more company decisions to be made with uncertain information. Preparing students to work in those companies only increased the importance of the uncertainty learning goal for capstone courses.

Greiner, Bhambri, and Cummings (2003) researched the uncertainty learning goal as applied to early capstone courses between 1912 and 1946. They found that those early courses had been taught through case studies that encouraged widely ranging solutions to uncertain situations. In addition, they emphasized that uncertainty should remain a key capstone learning goal in current classrooms because current companies had to operate in an increasingly messy or uncertain business environment.

### CEO'S PERSPECTIVE

Bower (2008) found that Harvard's capstone course focused on ambiguous challenges faced by CEOs. In doing so, Bower showed how closely the uncertainty learning goal is tied to a third learning goal, which is to acquire the CEO's perspective on managing companies. Bower examined Harvard's capstone course from 1955 onward, starting his examination at roughly the historical point where Greiner, Bhambri, and Cummings (2003) ended theirs, and found that Shaw's original focus on the CEO's perspective had continued well into the 1970s. The focus then shifted temporarily away from CEOs in the 1970s and 1980s, as middle managers formulated policy in complex conglomerates. However, the 1990s shift to an entrepreneurial economy prompted a return to the CEO's perspective. Bower believed that this return paralleled the advent of entrepreneurial CEOs taking the central role in policy formulation for their companies.

Denning (1968) saw that a common learning goal for capstone courses at Harvard and at the Carnegie Institute was to develop a CEO's conceptual framework and problem-solving skills. In today's pedagogical language, Denning essentially added two learning objectives under the CEO-perspective learning goal: to develop a CEO's conceptual framework and to develop a CEO's problem-solving skills. Denning further observed how the CEO's conceptual framework also aided students in the integration learning goal, since CEOs had to understand and inter-relate all facets of business.

A year after Denning (1968), the AACSB adopted its 1969 standard for capstone business courses and used the term "overall management level" to emphasize that the capstone course was to be taught from the CEO's perspective. Hunsicker (1980) then indirectly added another learning objective to the CEO-perspective learning goal. Hunsicker was a director of McKinsey and Company who saw busy CEOs too often delegating policy development to subordinates, rather than proactively guiding it themselves. Hunsicker observed that many policies succeeded or failed as much from the human element of support from key managers as from the policy's own logic. Hunsicker thus urged CEOs to utilize people skills and build early collaborative support for whatever policy was eventually adopted. From his arguments, I can cull a capstone learning objective to develop a CEO's collaborative people skills.

Bower (1982) and Arben (1997) further underscored the importance of the CEO-perspective learning goal. During the period when capstone courses were drifting away from the CEO's perspective, Bower wrote articles urging capstone instructors to continue to focus on what he called the life and death issues of interest to top managers. Arben added that Harvard's 1955 capstone textbook emphasized that each student should be trained to approach problems from the overall perspective of the top manager, regardless of the level of management at which that student was eventually employed.

As Bower (2008) noted, the shift to an entrepreneurial economy has only heightened the importance of providing today's students with the CEO's perspective. Denning (1968) had suggested that a learning goal for capstone business courses should be to develop an entrepreneurial management approach in students. The writings of Brouthers et al. (1998) would later allow us to perhaps modify that suggestion into two learning objectives under the CEO-perspective goal. Brouthers et al. observed that modern entrepreneurial firms had few staff other than CEOs with which to formulate policy. Despite this limitation, Brouthers et al. found that entrepreneurial firms still engaged in considerable information gathering and analysis before making policy decisions. However, the entrepreneurial firms were unable to perform the level of quantitative analysis of their larger counterparts and had to rely far more on the CEO's intuition.

I can thus find two capstone learning objectives in Brouthers et al. (1998). The first objective is to differentiate entrepreneurial management from non-

entrepreneurial management. The second objective is to strengthen quantitative skills. Some may prefer to retain Denning's (1968) entrepreneurial suggestion as a separate learning goal, but I have placed it as learning objectives under the CEO-perspective goal to emphasize that both entrepreneurial and non-entrepreneurial CEOs perform the same functions, regardless of differing resources.

Thus far, I have found three learning goals that have been part of capstone business courses since the beginning: (1) to integrate prior functional learning, (2) to work within uncertainty, and (3) to provide the CEO's perspective on managing companies. I have also found five learning objectives under the CEO-perspective goal: to develop a CEO's (1) conceptual framework, (2) problem-solving skills, (3) people skills, (4) quantitative skills, and (5) differentiation of entrepreneurial management. I now turn to the strategic modeling movement that began in the 1970s and the many learning goals and objectives added by that movement.

### STRATEGIC MODELING

In the conglomerate era of the 1970s, the focus of capstone business courses began to change. Schendel and Hatten (1972) argued that capstone learning was being limited by being considered a single course rather than a broader field of study. They proposed the name "strategy" to differentiate that broader field of study from the integrative basis of the traditional capstone course. Strategy was to use empirical research to continuously align a company's direction with its environment through selections of that company's objectives, resource allocations, programs and policies. Schendel and Hatten believed that that process could be analyzed and reduced to strategic models.

Schendel and Hatten (1972) also showed how a company needed to separate strategic management from everyday functional management. The authors distinguished strategic research from functional research by asserting that strategic research involved the total company organization, whereas functional research involved only specific areas of the company. They believed that the integrative nature of capstone courses should continue, but be supplemented by strategic research to provide richer teaching material and to create an area of specialization for students who wanted to study strategy as a field. Schendel and Hatten thus added a learning goal to capstone business courses: to analyze strategic models. They also added a learning

objective: to understand the differences between strategy and everyday functional or operational management. This objective evolved from the strategic modeling learning goal, but could just as easily fit under the CEO-perspective goal.

The strategic modeling movement grew so quickly that Leontiades (1979) warned that strategic models were threatening to replace reality in the classroom. He compared the strategic modeling movement in business to parallel movements in the economics discipline. There, Leontiades saw quantitative analysis overshadowing qualitative analysis and economics faculty withdrawing from reality to maintain the consistency of their quantitative models. He warned that capstone business faculty had to remain rooted in reality to provide meaningful solutions to real-world business problems. From this advice, I can extract another capstone learning objective: To develop practical solutions to business problems. While this objective evolved from the strategic modeling learning goal, it too could just as easily fit under the CEO-perspective goal, where one objective is to develop a CEO's problem-solving skills.

Leontiades also observed a shift in the faculty who taught capstone business courses. Such courses had traditionally been taught by senior business managers who brought business-world insights into the classroom. Now, however, more capstone courses were being taught by inexperienced professors who relied on strategic models. Such models were easier to teach, because they yielded precise, consistent answers; but Leontiades warned that the models often over-simplified the interdisciplinary complexity of real-world business problems. He also believed that strategic models ignored individual value judgments, which could not be quantified. From this advice, I can cull another learning objective within the strategic-modeling learning goal. That objective is to understand the interplay and respective strengths and limitations of qualitative and quantitative analyses.

Despite Leontiades' warnings, Camerer advocated a shift in capstone research toward deductive scientific theories that could be rigorously tested. Camerer saw three failures in the inductive theories of his day. First, those theories were ambiguous. Second, they were untested against competing theories. And third, they did not build upon the work of others. In other words, each capstone professor simply started anew and defined strategy as he or she wished. While Camerer preferred the scientific approach, he noted that capstone research had elements of both art and science in it. He commented that art, unlike science,

did not need to progress over time and acknowledged the value of inductive human intuition. Furthermore, he observed that induction was often grounded in realism, whereas deductive science was often criticized for focusing only on narrow problems rather than on important ones.

Nevertheless, Camerer's paper was heavily cited to further the strategic modeling movement. He discussed the implications of that movement on capstone business teaching when he argued that the inductive teaching approaches of his day focused on case studies in hopes that the student would remember some broad concepts. Camerer, on the other hand, hoped to use his deductive strategic models to teach capstone students how to innovatively conceptualize strategy. Remember, however, that Camerer taught at the MBA level, and that his learning objective to innovatively conceptualize strategy might be less appropriate at the undergraduate level.

The strategic modeling movement coincided with a rapid expansion of MBA schools and a resultant expansion in graduate-level capstone research. Arben (1997) wrote 12 years after Camerer and began a reexamination of learning goals and objectives for both graduate and undergraduate capstone courses. Recall that Schendel and Hatten (1972) had distinguished strategic modeling from traditional capstone learning goals, which were to integrate, to work within uncertainty, and to acquire the CEO's perspective on managing companies. Arben believed that capstone business courses had now strayed too far from those traditional learning goals and too far toward strategic modeling. He further believed that this shift had occurred because newer faculty members were uncomfortable with their own abilities to integrate business's many functional disciplines and because universities rewarded faculty members for expertise in narrow fields. Faculty members thus researched to establish that narrow expertise and then taught capstone courses as a series of intense analyses of narrow strategic models rather than as broad integration.

Hoskisson, Hitt, Wan, and Yiu (1999) showed just how complicated strategic modeling had become when they reviewed a plethora of competing strategic theories that had emerged after Schendel and Hatten (1972). Hoskisson et al. found that, before Schendel and Hatten, capstone researchers and capstone instructors had approached strategy by focusing on companies' long-term objectives, on what type of ventures the companies should pursue, and on the CEO's perspective on managing companies. In other words, capstone

learning objectives had concentrated on best practices for managers and students seeking to become managers. After Schendel and Hatten, however, learning objectives followed narrow empirical research, application of the scientific method, and computerized modeling of data.

Greiner et al. (2003) found that even the country's top 20 MBA schools had substituted theoretical analysis for interdisciplinary thinking and practice in capstone courses. They found that many capstone instructors taught either economic or organizational theories rather than teaching the practical, hands-on skills that students needed to become managers. The authors advocated a return to Shaw's 1912 pedagogy of open-ended student exploration to develop those skills. Greiner et al. suggested building a strategic mindset in students that would be "comprehensive and integrative across disciplines, requiring a wide range of analytical and behavioral skills, while making and behaving strategic decisions under highly dynamic, uncertain, and changing conditions." In other words, Greiner et al. reaffirmed the learning goals of integration and uncertainty and several of the learning objectives already discussed.

Five years later, Bower (2008) found that capstone courses were shifting away from strategic modeling and back to traditional learning goals. He marked the dot.com era as the beginning of Harvard's return to its traditional CEO-perspective learning goal. Harvard then introduced entrepreneurial courses as capstone alternatives to strategy courses, which had become so theoretically complex that most students could not understand them. The entrepreneurial courses emphasized action, not analysis, much as Shaw's original capstone course had done. Bower called for capstone courses to continue to move toward values-based and people-based learning objectives. He thus added a learning objective to explore values to the CEO-perspective learning goal.

## PRACTICAL BUSINESS SKILLS

Bower (2008) also identified yet another capstone learning goal: to reinforce practical business skills in students. Exactly what are those skills? Thus far, I have focused on the skills that emanate from the CEO's perspective, skills like solving problems, collaborating with people, and analyzing information. The advent of computerized business simulation games in the 1970s greatly increased the number of business skills that could be reinforced in capstone courses and expanded them beyond the CEO domain.

Wolfe (1976) reported that computerized business simulation games became widely used in capstone business courses after the 1969 AACSB requirement for such courses in all business schools. Wolfe wrote when there was considerable disagreement about the effectiveness of the games. The primary objection was that the games did little to promote in-depth student reflection and systematic analysis. Wolfe, however, found that games did indeed promote strategy formulation and integration by students. However, these benefits were often overshadowed by interpersonal conflicts among team members using the games. Wolfe thus spoke about computerized business simulation games largely within the capstone learning goals to integrate prior functional learning and to analyze strategic models, and within the learning objective, to develop a CEO's collaborative people skills.

Two decades later, Walters and Coalter (1997) reported results from the use of a computerized business simulation games in undergraduate capstone courses. They found that the game had been an effective teaching tool overall, but that its effectiveness had been diminished for those students whose strategic tendencies did not conform to the strategic norms of their teammates. Like Wolfe, Walters and Coalter thus referenced the capstone learning objective to develop a CEO's people skills.

By 2001, however, the widespread use of computerized business simulation games had begun to transform capstone learning objectives themselves. Faria (2001) reported that games had been in use for 45 years. He then examined the effectiveness of games in capstone business courses. Faria's main focus was on the effectiveness of games versus traditional lectures and case studies, but he also found that games were being used to teach a host of functional business skills like accounting, economics, human relations, finance, management, and marketing. In other words, learning objectives to reinforce functional skills had begun to encroach on the capstone class time available to integrate those skills with traditional capstone topics.

Gosen and Washbush (2004) also looked at the effectiveness of business simulation games, commenting that past research had not been rigorous enough to support that effectiveness. They cited a number of 1970s and 1980s authors who found that the games of those past days had been used to further traditional capstone learning goals and objectives. By contrast, Gosen and Washbush found that later researchers had become more fascinated with all the things that business simulation games

could teach and that a student's performance on the games had become "a proxy for learning."

The expansion of capstone learning objectives under the learning goal to reinforce practical business skills was not limited to computerized business simulation games. Prince and Helms (1993) advocated a learning objective to strengthen library research skills. They observed that capstone business syllabi required extensive library research projects, but that capstone students were ill-prepared to conduct that research. The authors noted that Mellon (1986) had coined the term "library anxiety" to describe how students feared using the library and urged that capstone students receive specialized instruction in business research.

Marshall, Bolten, and Solomon (2000) described a two-semester capstone course for MBA students that focused on developing comprehensive marketing and business plans. The course sought to produce cross-functional MBAs who could immediately contribute to their companies in a variety of functional and strategic areas. They identified a learning objective of the course as being to integrate and utilize technology. Marshall et al. also added student-led learning objectives to manage time, to conduct no-textbook research, to utilize telecommunications and databases, and to forecast business conditions. Remember, however, that Marshall et al. had MBA students and a two-semester course with which to work. Instructors of one-semester undergraduate courses might have to be more selective in learning goals and objectives.

Heady and Smith (2002) analyzed 19 textbooks and 549 case studies to determine whether case content matched the stated learning goals and objectives of capstone business courses. They identified theoretical topics like planning, formulation, implementation, and industry analysis, as well as emerging topics like international and entrepreneurial ventures, but did not expand capstone learning goals or objectives.

Aupperle and Dunphy (2003) sought to increase the quantitative skills of students by providing a capstone template with which to evaluate all factors of a firm's financial health and performance. They contrasted their template with Kaplan and Norton's (1993, 1996) balanced scorecard, which had included such topics as social responsibility, effectiveness at achieving management's stated goals, and stakeholder interests. Again, these topics fit within capstone learning goals and objectives that have already been covered.

Gilinsky and Robison (2008), however, advocated a capstone learning objective to strengthen information competency within capstone

courses. They argued that the ability to learn faster than one's competitors by finding and managing information was the most important factor in the success or failure of modern companies. The authors also cited AACSB standards that required students to determine the information needed for innovative problem solving and to then find and apply that information. Gilinsky and Robison promoted information competency as a learning goal, but in the current framework it fits well as an objective within the goal of reinforcing functional business skills.

### **PRIORITIZING THE GOALS AND OBJECTIVES**

I have now found five capstone learning goals and 18 learning objectives as summarized in Figure 1. Each of those goals and objectives has merit, yet a semester-long course allows only so much time in which to fulfill them for undergraduate students. Adopting too many goals and objectives might only confuse students and impede learning. How, then, does today's capstone instructor prioritize coverage?

Snow (1976) found four predominant teaching techniques in capstone business courses: case studies, business simulation games, combinations of cases and games, and combinations of games and experiential exercises. Snow urged that the techniques be used as much to increase a student's understanding of the operational realities of business as to increase his/her conceptual understanding. The traditional capstone learning goals to integrate functional knowledge, to work within uncertainty, and to acquire the CEO's perspective on managing companies, as well as the learning objectives associated with those goals, are certainly rooted in the real business world. Today's instructors would do well to make those traditional learning goals and objectives the foundation of their capstone courses.

Undergraduate capstone instructors should be careful about over-emphasizing the learning goal to analyze strategic models and its associated learning objectives. At the MBA level, students might have the maturity and experience to critique competing strategic models and to innovatively conceptualize strategy. At the undergraduate level, however, course time likely would be better spent on encouraging students to develop practical solutions to business problems, on understanding the limitations of quantitative and qualitative analyses, and on separating basic strategic issues from everyday functional ones.

Undergraduate instructors should also be careful not to overemphasize the final capstone

learning goal to reinforce practical business skills. That goal already has more associated learning objectives stemming from it than any other learning goal, and more objectives will probably emerge to keep students current with advancing technology. It is natural for capstone instructors to want to plug all the holes in a student's business education before sending that student to a job or graduate study, and capstone projects certainly offer an opportunity to reinforce many business skills. However, capstone instructors can neither reteach all previously missed functional skills, nor provide many new skills if they are to have time to meet the core learning goals to integrate, to work within uncertainty, and to acquire the CEO's perspective on managing companies. For undergraduates, perhaps the most important learning objectives under the skill-reinforcement goal are to manage time and to strengthen basic research and information competency skills.

In the end, there is no one-size-fits-all approach to adopting capstone business learning goals and objectives. Hodgetts, Ezell, and Van Auken (1976) urged capstone instructors to diagnose the needs of their particular students and then to adopt learning goals and objectives tailored to those particular students. For example, students with little managerial experience might need learning goals and objectives focusing on what managers actually do, whereas students with more managerial experience might be given goals and objectives to release student creativity. Hodgett et al.'s advice reminds us that whatever the learning goals and objectives, the purpose of a capstone business course should be to move students gently but firmly beyond their comfort zones and into the harsh realities of the business world.

### **REFERENCES**

- Arben, P. D. (1997). The integrating course in the business school. *Business Horizons*, 40(2), 65–70.
- Aupperle, K. E. & Dunphy, S. (2003). Benchmarking financial assessment in the strategy course: A qualitative and quantitative template. *Journal of Education for Business*, 78(4), 205–212.
- Bower, J. L. (1982). Business policy in the 1980s. *Academy of Management Review*, 7(4), 630–638.
- Bower, J. (2008). The teaching of strategy: From general manager to analyst and back again. *Journal of Management Inquiry*, 17(4), 269–275.

- Brouthers, K. D., Andreissen, F., & Nicolaes, I. (1998). Driving blind: Strategic decision-making in small companies. *Long Range Planning*, 31(1), 130-138.
- Camerer, C. (1985). Redirecting research in business policy and strategy. *Strategic Management Journal*, 6(1), 1-15.
- Denning, B. W. (1968). The integration of business studies at the conceptual level. *Journal of Management Studies*, 5(1), 1-28.
- Eldredge, D. L. & Galloway, R. F. (1983). Study of the undergraduate policy course at aacsb-accredited universities. *Strategic Management Journal*, 4(1), 85-90.
- Faria, A. J. (2001). The changing nature of business simulation/gaming research: A brief history. *Simulation & Gaming*, 32(1), 97.
- Gilinsky, A. Jr. & Robison, R. (2008). A proposed design for the business capstone course with emphasis on improving students' information competency. *Journal of Management Education*, 32(4), 400-419.
- Gordon, R. A., & Howell, I. E. (1959) *Higher education for business*. New York: Columbia University Press.
- Gosen, J., & Washbush, J. (2004). A review of scholarship on assessing experiential learning effectiveness. *Simulation & Gaming*, 35(2), 270-293.
- Greiner, L. E., Bhambri, A., & Cummings, T. G. (2003). Searching for a strategy to teach strategy. *Academy of Management Learning & Education*, 2(4), 402-420.
- Heady, R. & Smith, M. (2000). Business policy case content: A fit with theory and practice? *Journal of Education for Business*, 75(3), 138-141.
- Hodgetts, R. M., Ezell, D. E., & Van Auken, P. M. (1976). A contingency approach to business policy pedagogy. *Academy of Management Proceedings*, 130-134.
- Hoskisson, R. E., Hitt, M. A., Wan, W. P., & Yiu, D. (1999). Theory and research in strategic management: Swings of a pendulum. *Journal of Management*, 23(3), 417-456.
- Hunsicker, J. Q. (1980). Can top managers be strategists? *Strategic Management Journal*, 1(1), 77-83.
- Kaplan, R., & Norton, D. (1993). Putting the balanced scorecard to work. *Harvard Business Review*, 71(5), 134-142.
- Kaplan, R. & Norton, D. (1996). *The balanced scorecard: Translating strategy into action*. Boston, MA: Harvard University Press.
- Leontiades, M. (1979). Strategy and reality: A challenge for business policy. *Academy of Management Review*, 4(2), 275-279.
- Marshall, G. W, Bolten, S. E., & Solomon, P. J. (2000). The capstone "integrated business applications" course: Addressing the need for cross-functional mba education. *Marketing Education Review*, 10(5), 63-75.
- Mellon, C. A. (1986). Library anxiety: A grounded theory and its development. *College and Research Libraries*, 47(1), 160-165.
- Pierson, F. C. (1959). *The education of American businessmen: A study of university-college programs in business administration*. New York: McGraw-Hill.
- Prince, W. W. & Helms, M. M. (1993). Project-focused library instruction in business strategy courses. *Journal of Education for Business*, 68(3), 179-183.
- Schendel, D. E. & Hatten, K. J. (1972). Business policy or strategic management: A broader view for an emerging discipline. *Academy of Management Proceedings*, 99-102.
- Snow, C. G. (1976). A comment on business policy teaching research. *Academy of Management Review*, 1(4), 133-135.
- Walters, B. A., & Coalter, T. M. (1997). Simulation games in business policy courses: Is there value for students? *Journal of Education for Business*, 72(3), 170.
- Wolfe, J. (1976). The effects and effectiveness of simulations in business policy teaching applications. *Academy of Management Review*, 1(2), 47-55.

**Figure 1: Capstone Goals and Learning Objectives**

<b>Capstone Goals and Learning Objectives</b>	<b>Considerations</b>
1. Goal: To integrate prior functional learning	A traditional capstone learning goal
2. Goal: To work within uncertainty	A traditional capstone learning goal
3. Goal: To acquire a CEO's perspective on managing companies	A traditional capstone learning goal
To develop a CEO's conceptual framework	Also furthers the learning goal to integrate prior functional learning.
To develop a CEO' problem-solving skills	Also furthers the learning goal to work within uncertainty when students are required to work with ambiguous information.
To develop a CEO's collaborative people skills	Instructors can use team conflicts as learning opportunities for self-management.
To differentiate entrepreneurial management	Instructors should emphasize that entrepreneurial CEOs must perform the same functions as non-entrepreneurial CEOs, just with less resources.
To strengthen quantitative skills	Instructors should not reteach accounting, finance, and statistics, but should require students to support answers with hard numbers.
To explore values	Instructors should emphasize the CEO's duty to shareholders, the differing ethical cultures of companies, and the uncertainty of values-based conflicts.
4. Goal: To analyze strategic models	A learning goal that should be used sparingly with undergraduates.
To differentiate strategic issues from functional issues	Vitally important to CEOs, but undergraduates might not have the experience to differentiate all issues.
To develop practical solutions to business problems	Also furthers the learning objective to develop a CEO's problem-solving skills and the goal to work within uncertainty.
To understand the interplay and limitations of qualitative and quantitative analyses	Instructors should require integrative qualitative and quantitative analyses of cases and projects.
To innovatively conceptualize strategy	Better suited for MBA students than for undergraduates.
5. Goal: To reinforce practical business skills	A learning goal that is important for undergraduates, but should not take too much course time away from traditional learning goals
To strengthen functional skills	Should occur naturally from case and project analyses, rather than becoming a course focus.
To strengthen library research skills	Can be incorporated through one class period with a reference librarian at the start of capstone projects and self-initiated student contact with that librarian thereafter.
To integrate and utilize technology	Should occur naturally from case and project analyses, rather than becoming a course focus.
To manage time	Perhaps the most valuable skill that students can acquire from team projects.
To conduct no-textbook research	Can be incorporated through capstone projects that require student information-gathering from businesspeople.
To utilize telecommunications and databases	Should occur naturally from case and project analyses, rather than becoming a course focus.
To forecast business conditions	Better suited for MBA students than for undergraduates.
To strengthen information competency	Instructors should select capstone projects that require students to clarify and act upon the information gathered, rather than just report statistics.

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# MARKETING TO COLLEGE WOMEN TO ENCOURAGE REFLECTION AND RESPONSIBILITY REGARDING CONSUMPTION OF ALCOHOL ON ALL-WOMEN CAMPUSES

Arlene Peltola and James Scepansky

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## ABSTRACT

When targeting college women regarding alcohol use decisions, marketers have to be skilled in both crafting the message and executing the media mix. The primary purpose of this article is to demonstrate that gender matters vis-à-vis alcohol consumption and to provide key insights that are potentially extendable to national campuses based on learning from a campus marketing campaign, "What Was I Thinking?" The marketing campaign, using a female-specific communication model and spotlighting the top consequences of drinking for college women, achieved 78% awareness, increased awareness of the campus drug and alcohol prevention program, and reduced the incidence of having three or more drinks in one sitting. Results from the marketing campaign provide a benchmark for evaluating the success of programs at other colleges.

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## INTRODUCTION

Working with The U.S. Department of Education, Cedar Crest College, a private liberal-arts college for women in Pennsylvania received grant funding from the Pennsylvania Liquor Control Board to create a campaign targeted to college women based on the results of research fielded on our campus. This article summarizes a comparison of data collected at Cedar Crest College with data provided by the Core Institute on alcohol use at the national college level as well as customized aggregates at the local level (e.g., a set of all women's colleges and a set of peer institutions) to advance the dialogue regarding the role of alcohol on U.S. campuses and, in particular, how college-age women are impacted. The article integrates the data about risky behavior and gender differences to develop a model of communication based on three relational drivers: 1) incidence of drinking (number of drinks/week and incidence of binge drinking), 2) gender distinctions (reasons for drinking and effects and consequences of drinking), and 3) drinking awareness (campus policy and individual accountability to seek and consider information). We found that women demonstrate less risky behavior and experience fewer consequences of alcohol consumption on all-women's campuses than women at coeducational institutions across the U.S. As a result of examining the data and culling insights from this research, a campaign was created to specifically target college women ages 18–24, intended to convince them to make consumption decisions regarding alcohol consumption that are well-thought-out and reflective.

Within the study results, gender differences in drinking were expected and confirmed on a national and peer group level. Drinking consequences to women were examined for each of four research sets (national colleges, peer colleges, all women's colleges and our specific college of interest) to establish a communication model and marketing strategy. A secondary literature review was conducted and found that much of the literature at the higher education level focuses on coeducational environments. Research on alcohol use at all-women campuses is scarce in published literature.

The campaign, "What Was I Thinking?" (WWIT) targeting women ages 18–24 ran on campus late spring and early fall 2009 for a total of sixteen weeks. Pre-campaign research was fielded November 2008 and post campaign research was fielded November 2009. Primary and secondary research insights about how college women perceive substance use led to potential campaign ideas and copy and executional elements that were then carefully considered and narrowed to those that focused on educating and encouraging the target audience to make substance usage decisions that were thoughtful and reflective. The rationale for the word "thinking" as a cornerstone of the ultimate campaign headline was due to its implicit connection to a higher educational environment and because the data collected show that the perception of peer drinking and other substance abuse was significantly higher than the reality of that use. The home institute study found that 52% of women on campus believed that the average student consumed alcohol three times or more per week. In reality, only 10.5% reported using alcohol three times or more per week. Previous

research conducted on a liberal arts campus by Berkowitz and Perkins (1986) suggests that only about 19% of students felt that occasional or frequent intoxication was acceptable, while 63% of the respondents perceived that the general campus felt that occasional or frequent intoxication was acceptable.

The home institution study found that among those women who drank alcohol, the most common adverse effects were: experienced a hangover (46%), nausea/vomiting (44%), experienced a serious personal problem (31%), had regrets after drinking (30%), reported missing a class (19%) and reported driving under the influence (17%). A gender specific campaign using these findings within a female-specific model was designed using elements of connected knowing. As Belenky, Clinchy, Goldberger and Tarule (1986) suggest in "Women's Ways of Knowing," connected knowing is characterized in much the same ways we characterize a relationship; it is often seen as an orientation in which truth emerges through care. "Connected knowing builds on the conviction that the most trustworthy knowledge comes from personal experience rather than the pronouncements of authorities" (Belenky et al., 1986, p. 112). In addition, storytelling was used to further connect learning and sharing in monthly newsletters and at events such as "Perception Twister" and "Perception Bingo."

According to national data provided by the Core Institute (2010), use of alcohol in the past year does not differ by gender (84% for each gender), nor does alcohol use in the past 30 days (71% women, 74% men). However, there is a significant difference in terms of number of drinks in a week (3.6 drinks for women and 8.4 drinks for men) and prevalence of heavy and frequent drinking (18% for women versus 34% for men). In a study identifying high-risk drinkers, Presley and Pimentel (2006) examined the role of frequency and found college drinkers meeting the criterion of multiple episodes of heavy episodic drinking consistently had a higher probability of being among the top 33% of those suffering from each possible negative consequence. As drinking increases, women who were heavy and frequent drinkers experienced negative consequences on twice as many indicators, as did men.

Based on an examination of normative data provided by the Core Institute (2010), it appears that the top four reasons college-age men drink are aligned with why college-age women drink; they believe that drinking 1) breaks the ice, 2) enhances social activity, 3) is something to do, and 4) is something to talk about. In the national research where gender differences do occur, the most

significant point spreads between the genders occur in the following effects: makes women sexier (32 points to the upside for men), facilitates sexual opportunities (12 points to the upside for men), makes me sexier (11 points to the upside for men), facilitates female bonding (9 points to the upside for women) and facilitates male bonding (8 points to the upside for men).

The current research had two primary goals. First, by utilizing a survey that has been administered on many college/university campuses, we were able to identify key differences and trends regarding alcohol use and perception between home institution students and those students who attend other institutions nationwide. For instance, we intend to shed light on alcohol-related behavior and thinking that appears to be unique to women who attend institutions similar to the home institution (all women's colleges and peer institutions). The second main goal is to design a marketing campaign that effectively utilizes information gained via the survey research to impact women's thinking and decision-making regarding the use of alcohol and drugs.

## METHOD

### Recruitment and Participants

The current study was carried out at Cedar Crest College, a small all-women's liberal arts college in Pennsylvania. Every attempt was made to recruit participants from diverse academic programs on campus. After obtaining institutional review board approval, the researchers generated a random list of classes across several disciplines. Researchers obtained permission from a convenience sample of course instructors in these disciplines prior to requesting participation from the students in selected classes. In an effort to further increase the academic diversity of our sample, several data collection sessions were held in the institution's Student Union building; specifically, students utilizing dining services were asked if they would be willing to complete a survey.

Initially, a total of 207 undergraduate students participated in the current investigation. However, since the study was designed to examine issues related to alcohol among traditional-age female college students exclusively, several participants were excluded from analyses. The data from five students were excluded for not meeting the 18-24 age requirement for the study. We also excluded the few male students who are allowed to enroll in two daytime programs at the institution. Specifically, data from an additional 11 students were excluded for failure to identify gender; and data for one student

was excluded because the student was male. Analyses were, therefore, based on a sample that consisted of 190 female students between the ages of 18 and 24 years (mean age = 19.82 years; standard deviation = 1.38). In terms of academic major, 31.9% of participants indicated a major in the natural sciences (biology, chemistry), 22.9% reported majors in the social sciences (psychology, social work), 14.3% were business majors, 10.3% were nursing majors, 8.0% were education majors, and 12.6% of participants listed one of a variety of other majors (e.g., art or English) or did not list a major. In terms of academic rank, approximately 21% of the participants were freshman, 34% were sophomores; 27% were juniors, and 17% were seniors. Additionally, approximately 82% of the participants were white, 98% were single, 69% lived on campus, and 83% had at least a part-time job.

### **Instrument**

The instrument utilized during the current investigation was obtained from the Core Institute at Southern Illinois University Carbondale. The Core Institute provides survey instruments that can be utilized to assess institutional alcohol and drug use on college/university campuses, the results of which can be compared to national data that is archived by the Core Institute. According to their own website, the Core Institute (2011) maintains "the largest national Alcohol and Other Drug (AOD) database about college student's drinking and drug use in the country." The mission of the Core Institute is to "support sound quantitative assessments that inform and direct student life programming efforts for the benefit of students' health and welfare across the nation" (Core Institute, 2011). The Core Institute makes available both a long-form (39 items) and a short-form (23 items) Core Alcohol and Drug Survey (Core Institute, 1989). For the current investigation we utilized the 23-item short-form of the Core Alcohol and Drug Survey. This was done in the interest of time; we wanted to maximize the likelihood that students would be willing to participate and the short form requires a smaller time commitment. It is important to point out that the two instruments are not mutually exclusive; rather the items on the short-form survey are simply a subset of those found on the long-form instrument. Consequently, items that are found on both the long and short forms are available for comparison regardless of which form a particular institution employed. The first section of the survey requests basic demographic information, such as age, ethnicity, academic rank, marital status, employment status and residency. The balance of survey items

assess: 1) students' perceptions toward availability of alcohol/drugs on campus, 2) students' awareness and perceptions of campus policies regarding drug/alcohol usage, 3) students' actual alcohol and drug consumption, including the age of first use, amount consumed within the past 30 days, and amount consumed within the past year; 4) perception of use by other students; 5) beliefs regarding where alcohol/drug consumption typically takes place; and 6) perceptions regarding the negative effects/consequences experienced as a result of alcohol/drug use. A validation study carried out by Presley, Meilman, and Lyerla (1993) suggests that the instrument has a high degree of content validity; the inter-rater agreement for inclusion of possible items on the final survey was 0.90 among a panel of evaluators. Furthermore, item reliability was assessed using Cronbach alpha for the four major content areas on the instrument and a comparison was made between data collected in 1991 and 2004 to determine the stability of the instrument over time (Core Institute, 2005). Although the item correlations for specific substances (e.g., alcohol, marijuana, and opiates) varied in each category and at each point in time, the overall Cronbach alphas for each category suggest that the instrument is reliable and stable: age at first use (0.79 in 1991; 0.75 in 2004), use within last year (0.64 in 1991; 0.70 in 2004), perceptions of others' use (0.90 in 1991; 0.94 in 2004), consequences of use (0.90 in 1991; 0.89 in 2004).

### **Procedure**

All participants were greeted by a member of the research team and were informed of the purpose of the study. They were also given the right to refuse participation or withdraw from the study at any time. The Core Institute survey was then administered to the participants. The participants who completed the surveys were instructed to immediately place all completed surveys directly into a designated research box to ensure confidentiality and anonymity. Those who participated were entered into a raffle of prizes to compensate for their time.

### **Comparison Groups**

The Core Institute at Southern Illinois University Carbondale was contacted to obtain normative data collected via the Core Institute Survey from three different groups: 1) 68,545 male and female students from a large national sample, 2) a sample of 1,305 female students attending women's colleges ( $n = 8$ , not including the home institution), and 3) 2,366 students attending colleges that are considered peers of the home institution. The peer group is a set of

institutions that is similar to the home institution with respect to 18 quantitative variables selected and endorsed by the campus community. These 18 variables are divided into four broad categories: enrollment, academics and residence, admissions and financial aid, and tuition and endowment.

## RESULTS AND DISCUSSION

### Prevalence of Alcohol Use and Binge Behavior

Figure 1 (refer to Appendix 1) shows the mean number of drinks consumed per week by students attending 1) Cedar Crest College 2) a sample of women's colleges, 3) peer institutions (broken down by gender), and 4) colleges that constitute the national sample (also broken down by gender). It is clear that female students in general tend to consume fewer drinks on average than do male students. Further, there appears to be a modest difference in consumption, where women who attend women's colleges (in general, and Cedar Crest College specifically) tend to drink less than women who attend coed institutions (both peer and national). To test this assertion, two separate single sample *t* tests were run comparing the mean number of drinks consumed per week by Cedar Crest College students (mean = 1.47 drinks) to normative data provided by the Core Institute regarding female students attending peer colleges and female students attending colleges in the national sample. First, a significant difference was found suggesting that Cedar Crest College students drink less than female students attending peer colleges (mean = 2.51 drinks),  $t(df=188) = 5.14$ ,  $p < 0.05$ . Cedar Crest College students also report drinking significantly less than female students attending a national sample of colleges (mean = 3.62 drinks),  $t(188) = 10.61$ ,  $p < 0.05$ . It is important to point out that a single sample *t*-test was also run comparing Cedar Crest College students to students attending other women's colleges in terms of the mean number of drinks consumed per week (mean = 1.45 drinks). A significant difference was not found,  $t(188) = 0.08$ ,  $p > 0.05$ .

Figure 2 (refer to Appendix 1) shows the percentage of students attending each of the institution types (by gender where appropriate) who engaged in binge drinking behavior at least once during the previous 30 days. Following standard convention, bingeing was defined as the consumption of five or more alcoholic beverages in a single sitting. Figure 2 indicates that both peer school women (33.0%) and Cedar Crest College women (32.8%) reported a similar level of bingeing, and that these percentages fall in between the lowest level of bingeing for female students (women attending all-

women's colleges; 20.9%) and the highest level of bingeing for female students (women attending national sample of colleges; 41.2%), and that all values reported by female students are lower than those reported by male students attending either peer institutions (57.0%) or the national sample of colleges (55.6%).

### Consequences of Alcohol Consumption

Figures 3 through 6 (refer to Appendix 1) present the percentage of students experiencing specific, adverse consequences of alcohol consumption, namely, driving a car while intoxicated, having a hangover, missing a class, and doing poorly on an exam. Again, these results are organized by institution type, as well as by gender, where appropriate. Across all four figures, a pattern is evident. It appears that female students are less likely to experience these adverse consequences as a result of their drinking behavior, and that Cedar Crest College women experience these consequences at a rate that is intermediate to women who attend all-women's colleges and women who attend peer institutions.

One area where Cedar Crest College women do not appear to compare favorably is with respect to beliefs about the campus environment in terms of the prevention of alcohol and drug abuse. Specifically, on the survey item asking whether a student's campus has an official alcohol and drug policy, 90.6% of Cedar Crest College students said yes, compared to 92.8% for female students who attend both all-women's colleges and peer institutions. When asked if their campus has a prevention program, only 16.6% of Cedar Crest College students said yes; 36.7% of all-women's college students, and 39.4% of women attending peer colleges said yes. Finally, when asked whether the campus was concerned about prevention of alcohol and drug use/abuse, only 66.0% of Cedar Crest College students said yes, compared to 72.0% of all-women's college students and 78.2% of women who attend peer colleges. The lack of knowledge regarding campus alcohol policies and programs, as well as the belief that the campus does not address alcohol use as a serious issue, may lead to a number of potential consequences. First, students cannot take advantage of programs they are unaware of, which can lead to an underutilization of resources. Second, students who are unaware of campus alcohol policies may be more likely to violate those policies and face disciplinary actions. Finally, if students perceive that their institution does not communicate the importance of responsible alcohol consumption, then this may lead to students internalizing the attitude

that alcohol abuse is a trivial matter.

The results of the current analyses suggest that not only do female students drink less (and binge less) than their male counterparts, but they are also less likely to experience several of the negative after effects of drinking. This seems to be particularly true for female students attending women's colleges. Future research should explore the potential reasons for this gender difference. It may be that female students are more aware of the negative consequences (date rape, unplanned pregnancy, sexually transmitted disease) and are therefore more careful to avoid putting themselves into situations in which they could experience those consequences.

It is important to point out that the investigators for the current research had no control over the sampling that took place in terms of the colleges that were selected for the aggregate of women's colleges, peer institutions, and the national sample, or for the sampling of participants at each institution selected for inclusion. For that reason, it is not possible for the authors to ensure the representativeness of the normative samples to the populations to which they are meant to generalize.

## THE BUSINESS CONTEXT

Based on a review of the literature and data collected at Cedar Crest College, the comparison of results to all women's colleges, peer institutions and the national sample vis-à-vis gender differences in consumption, a distinctive marketing strategy and campaign was created to specifically target college women 18–24 intended to convince them to make consumption decisions that are well- thought-out and reflective. The "WWIT" campaign ran for 12 weeks during the spring semester of 2009 and for an additional four weeks during fall semester 2009. Pre and post campaign results were examined on select questions regarding awareness, effectiveness and behavior toward alcohol or drugs.

### The Marketing Strategy

The marketing strategy is to encourage college women 18–24 to make mindful decisions. Consistent with our literature review and empirical research, the three marketing objectives are to build awareness, promote reflection and encourage personal responsibility.

To start the creative process, it was important to think about potential influencers on decisions college women make regarding alcohol consumption. It is both obvious and useful to note the traditional college population is, for the most part, living on their own, with less reliance on their former reference points for

important decisions (e.g., parents, siblings, church, and relatives). Friends and acquaintances become the strongest influence in all social groups (Hansen, 1997) and college students' use of alcohol and other drugs is associated much more closely with peer use than with family or other external influences (Perkins, 1985; Kinard & Webster, 2010).

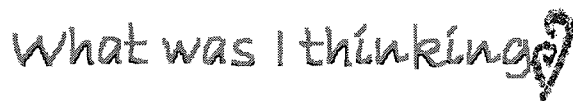
In addition to friendship groups as potential influencers, alcohol consumption is found to be influenced by television advertising and product placements and portrayals of consumption in programming targeted to college viewers. In their 2006 content study of three seasons of *The O.C.* (a highly popular television program with 12–17 and 18–34 age segments) Russell, Russell & Grube found in 2009 that "messages contained within television programming may influence college students' health-related attitudes, beliefs, and behaviors". Further, Jean Kilbourne (2000; as cited in Newman, 2005) claims that "the alcohol industry targets heavy drinkers in its advertising because they are the most lucrative consumers: however young people are also a target because they are potential consumers of alcoholic products" (p. 19). Gordon, Hastings and Moodie (2009) argue after a comprehensive review of current literature that in recent longitudinal research, "alcohol marketing is having an effect on youth alcohol consumption" especially when examining media beyond broadcast, such as sponsorships, social media, price promotions, alcohol branded merchandise, new forms of distribution and product placement (p. 97).

It is also important to consider if, in general, socially responsible messages impact attitudes and behavior on alcohol consumption. Prior literature reports mixed effects from advertising advocating responsible drinking. Some studies found that public education campaigns for responsible drinking did not have an impact on behavior (Whitehead 1979). A social norm campaign at a large public university, "Thinking about Your Drinking" was found to have no positive effect on perceived peer drinking norms due to the fact that students found the statistics in the campaign "unbelievable" or "very unbelievable," and students did not understand the campaign purpose (Thombs, Dotterer, Olds, Sharp & Giovannone, 2004). Further, Ringold (2008) finds that "responsibility advertising sponsored by government or nonprofit organizations can affect changes in knowledge, attitudes and behavior, although knowledge is likely to be influenced the most and behavior the least" (p. 130).

Last and most compelling of the potential influencers is the student herself. Kinard and Webster (2010) found that "in a risk behavior context, low self-efficacy individuals are unlikely to resist

engaging in behavior detrimental to their health, whereas high self-efficacy individuals are more likely to resist such behavior” (p. 28). The creative decision thus was made to aspire to a student’s high self-efficacy.

### The Campaign



The campaign, “What was I thinking” with an open heart question mark, is built on individual motivational enhancement, the theory that individuals are responsible for changing their behavior and complying with that decision (Miller, Zweben, DiClemente & Rychtarik, 1992). Motivation is defined as “an inner state of arousal with the aroused energy directed to achieving a goal” (Hoyer & MacInnis, 2008, p. 45). The goal of the campaign is to arouse reflection by dint of the headline and arouse responsibility by dint of poster comparisons and true stories. The campaign message is designed to reflect research results and be believable. Every word in the headline was intended to speak clearly to the student; “what” (cued the student to consider the facts) “was” (cued the student to think about her most recent or past behavior) “I” (cued the student to think for herself and take responsibility) and “thinking?” (cued the student on an active versus passive note). Because the campaign headline is “What was I thinking?” in lieu of “What were *you* thinking?,” it worked to set a reflective versus an accusatory mood.

Agrawal and Duhachek (2010), in their study with undergraduate students, confirmed that having a well-planned media placement strategy on the basis of the emotional environment the media content may create is needed. Hence, the integrated media mix was developed to reach women 18–24 in familiar venues: 1) social networking media, including Facebook, blogs, WWIT website, YouTube, and cellphone text campaign and 2) on campus place-based visibility, including posters, party smart cards, compacts and events, Perception Twister and Perception Bingo.

### On Campus Place-Based Posters

The full set of four posters highlighted the top four consequences women experience as a result of risky alcohol behavior (hangover, nausea, did poorly on a test, and drove while under the influence).

The four-poster campaign was hung all over campus in high-traffic public areas: the book store, dining halls, student health center, student center,

academic halls and residence halls. (Refer to Appendix 2.)

### Social Networking Media: Facebook

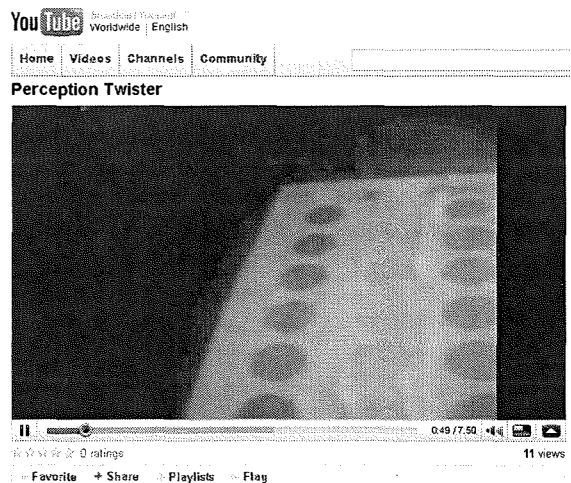
Facebook is the most popular social network site both among college men and women. According to the Anderson Analytics study (2009), “users can perform multiple activities from one destination. Facebook is becoming more of a hub than just a social networking site—almost a mass medium unto itself.” The WWIT Facebook page highlighted the campaign via campaign information, discussion posts and wall updates.

### Social Networking Media: Website

The WWIT website explained the campaign’s vision and provided counseling information locations and safety tips. It used storytelling as connected learning and announced the Perception Twister and Bingo events and the Health and Wellness Fair poster and lecture.

### Social Networking Media: YouTube

The eight-minute YouTube video exposes the consequences of using simulated (alcohol impaired) goggles while playing a game of “Perception Twister.” Students expressed dizziness, headache, color confusion and disorientation.



### Events: Perception Twister, Bingo

Both events were well attended. Bingo, a highly popular event on campus, was customized as a learning game whereby players received letters (B–I–N–G–O) for the correct answers to facts about alcohol consumption.

### **Social Networking Media: Cell Phone Text Campaign**

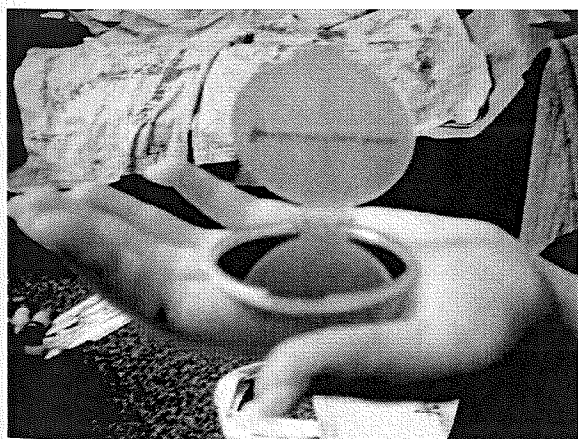
Our campaign received further exposure through a cell phone text blitz. The following message was started by a student with the request to pass on the text to two friends on campus: "WWIT? Check out the posters around campus and pass on this text to two friends on campus."

### **On-Campus Place-Based Merchandising: Party Smart Cards for Women**

Party smart cards were distributed at all WWIT events, motivating women to be informed and responsible. Because women are generally affected faster than men by the consumption of alcohol due to differences in body size, body water content, levels of gastric alcohol dehydrogenase and hormonal distinctions, a gender specific impairment chart was distributed (Refer to Appendix 2.)

### **On-Campus Place-Based Merchandising: Compacts**

Pink compacts were provided at all WWIT events. The compact cover has the campaign title printed backwards, requiring a mirror image to read it correctly. The mirror symbolizes self-reflection. The compact is small enough to carry along to a party for makeup checks using the compact cover as a motivator to carefully consider substance-abuse decisions.



### **Results of the Campaign**

The "WWIT" campaign ran for 12 weeks from March 2009 to May 2009 and for an additional four weeks in September 2009. The 23-question Core Institute survey that provided the benchmark data on alcohol and drug use on campus was fielded

November 2008 and was completed by 190 respondents. The 13-question post campaign survey, a subset of eight questions from the Core Institute instrument with five questions on the WWIT campaign, was completed by 194 respondents and was fielded November 2009.

Of the respondents who completed the post campaign survey, 78% (151 respondents) were aware of the "WWIT" campaign. Of those aware, 69% felt the posters were somewhat effective in portraying the consequences of alcohol or drug use and 9% felt they were extremely effective. Of those aware of the campaign, 29% felt the campaign encouraged them to make reflective substance use decisions, 33% were undecided and 38% disagreed that the campaign encouraged them to make reflective decisions. Of those aware of the campaign, 20% felt the campaign affected their behavior towards alcohol or drugs, 30% were yet undecided and 50% disagreed.

Answers to the following questions, asked before and after the campaign, suggest positive change:

1. Does your campus have a drug and alcohol prevention program? Before the campaign, 17% responded yes and after the campaign, 84% responded yes.
2. Do you believe your campus is concerned about the prevention of drug and alcohol use? Before the campaign, 66% responded yes and after the campaign, 77% responded yes.
3. Have you had three or more drinks over the last two weeks in one sitting? Before the campaign, 9% responded yes and after the campaign, 5% responded yes.

In contrast, answers to the following questions suggest that there was no effect from the campaign:

1. Does your campus enforce the drug and alcohol policy? Before the campaign, 65% responded yes and after the campaign, 60% responded yes.
2. What is the average number of drinks you consume in a week? Before the campaign, 1.44 drinks and after the campaign, 1.49 drinks.

A number of cross tabulations were run to gain deeper insights into the data. The cross tabulated data suggest that those respondents who thought the posters were somewhat or extremely effective also thought the campaign would affect their behavior towards alcohol and drug usage decisions. In addition, the older the respondents, the more they wanted alcohol available to them. Respondents with lower cumulative grade point averages are more likely to want drugs available to them. And the respondents who were aware of the campaign had a

relatively high cumulative grade point average of between B+ to A (note: GPAs were self-reported).

### SUMMARY

The results of the analysis suggest that gender matters when it comes to alcohol consumption and consequences among college students ages 18–24. We found that women drink less and demonstrate less risky behavior and experience fewer consequences on all-women's campuses than women at coeducational institutions across the U.S.

The WWIT campaign, directed at college women using a female-specific model, was intended to convince them to make consumption decisions that are well-thought-out and reflective. The campaign was a success in terms of achieved awareness of both the campaign itself and the campus drug and alcohol prevention program. Further, the data analysis found that the belief that the campus is concerned about the prevention of drugs and alcohol use was greater after the campaign, while the frequency of consumption of three or more drinks was lower.

Establishing normative data regarding college campaigns would be useful in assessing the relative level of effectiveness. We recommend further research be done to determine the reasons for gender difference in alcohol consumption, and to better understand what precisely causes or deters excessive drinking and bingeing. We recommend that subsequent campaigns targeted at women (who are not at "high-risk") emphasize that the decision to drink alcohol, and the consequences of doing so, is ultimately in the hands of each individual student. In addition, those campus campaigns tasked with educating women about the risks of alcohol consumption should recognize that students need time to make up their minds on social issues like drug and alcohol use. An effective campaign, in our opinion, would encourage the student's awareness, accountability and responsibility regarding alcohol use, a message that should be repeated frequently over the course of the student's career on campus.

### REFERENCES

- Agrawal, N., & Duhachek, A. (2010). Emotional compatibility and the effectiveness of antidrinking messages: A defensive processing perspective on shame and guilt. *Journal of Marketing Research*, 47(2), 263–273.
- Anderson Analytics. (2009). College students say Facebook is the only social networking site that really matters. Retrieved from <http://www.andersonanalytics.com>.
- Belenky M., Clinchy, B., Goldberger, N. & Tarule, J. (1986). *Women's ways of knowing*. New York, New York: Harper Collins Publishers.
- Berkowitz, A. D., & Perkins, H. W. (1986). Problem drinking among college students: A review of recent research. *Journal of American College Health*, 35(1), 21–28.
- Core Institute. (1989). Core alcohol and drug survey. Core Institute on Alcohol and Drugs at Southern Illinois University Carbondale.
- Core Institute. (2005). Reliability comparison between core alcohol and drug survey results 1991 and 2004. Unpublished manuscript.
- Core Institute. (2010). Data sets of aggregate alcohol and drug trends. Core Institute on Alcohol and Drugs at Southern Illinois University Carbondale.
- Core Institute. (2011). Welcome to core institute. Retrieved from <http://www.core.siuc.edu>.
- Gordon, R., Hastings, G., & Moodie, C. (2009). Alcohol marketing and young people's drinking; what the evidence base suggests for policy. *Journal of Public Affairs*, 10(1–2), 88–101.
- Hansen, W. B. (1997). A social ecology theory of alcohol and drug use prevention among college and university students. In *Designing alcohol and other drug prevention programs in higher education: Bringing theory into practice*, Newton, MA: U.S. Department of Education.
- Hoyer, W., & MacInnis, D. (2008). *Consumer behavior*, 5<sup>th</sup> ed. Boston, MA: Cengage Learning.
- Kilbourne, J. (2000). Alcohol advertising contributes to teen alcohol abuse. In Newman's, *Does advertising promote substance abuse?*. Farmington Hills, MI: Thomson Gale.
- Kinard, B. R., & Webster, C. (2010). The effects of advertising, social influences, and self-efficacy on adolescent tobacco use and alcohol consumption. *Journal of Consumer Affairs*, 44(1), 24–43.
- Miller, W. R., Zweben, A., DiClemente, C. C., & Rychtarik, R. G. (1992). *Motivational enhancement therapy manual*. DHHS Publication No. (ADM) 92–1894.
- Newman, L. M. (2005). *Does advertising promote substance abuse?*. Farmington Hills, MI: Thomson Gale.
- Perkins, H. W. (1985). Religious traditions, parents, and peers as determinants of alcohol and drug use among college students. *Review of Religious Research*, 27(1), 15–31.
- Presley, C. A., Meilman, P. W., & Lyerla, R. (1993). *Alcohol and drugs on American college campuses: Use, consequences, and perceptions of the campus environment, Volume I: 1989–*



1991. Carbondale, IL: Southern Illinois University.

- Presley, C. A., & Pimentel, E. R. (2006). The introduction of the heavy and frequent drinker: A proposed classification to increase accuracy of alcohol assessments in postsecondary education settings. *Journal of Studies on Alcohol, 67*(2), 324–331.
- Ringold, D. (2008). Responsibility and brand advertising in the alcoholic beverage market. *Journal of Advertising, 37*(1), 127–141.
- Russell, C., Russell, D. W., & Grube, J. W. (2009). Nature and impact of alcohol messages in a youth-oriented television series. *Journal of Advertising, 38*(3), 97–111.
- Thombs, D., Dotterer, S., Olds, S., Sharp, K., & Giovannone, C. (2004). A close look at why one social norms campaign did not reduce student drinking. *Journal of American College Health, 53*(2), 61–68.
- Whitehead, P. (1979). Public policy and alcohol related campaigns or social controls. *Addictive Behaviors, 4*(1), 83–89.

Appendix 1: Figures 1–6

Note: CCC = Cedar Crest College, WCC = Women's College Coalition

Figure 1. Prevalence of Alcohol Consumption

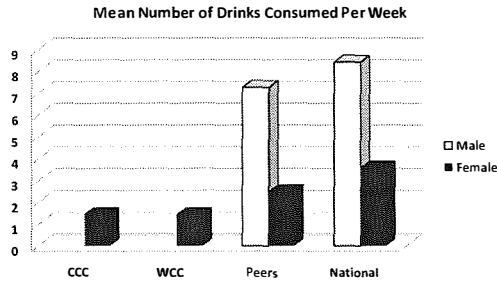


Figure 2. Prevalence of Binging

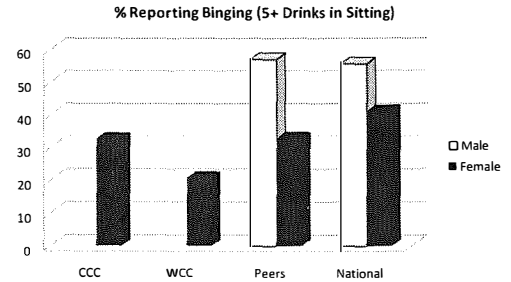


Figure 3. Consequence—Driving a Car

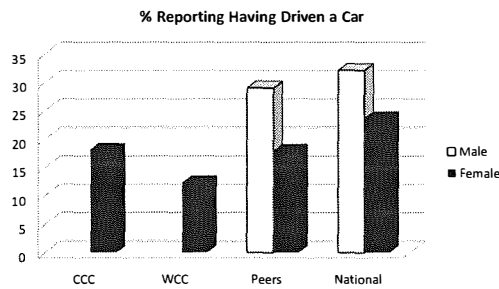


Figure 4. Consequence—Hangover

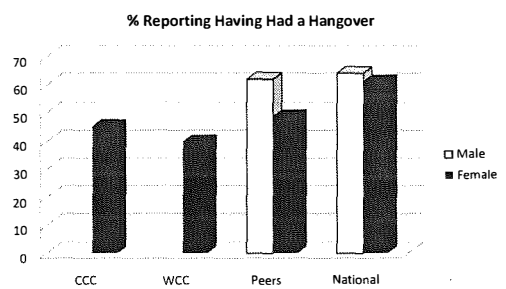


Figure 5. Consequence—Missed a Class

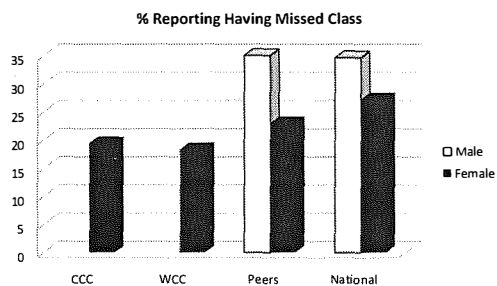
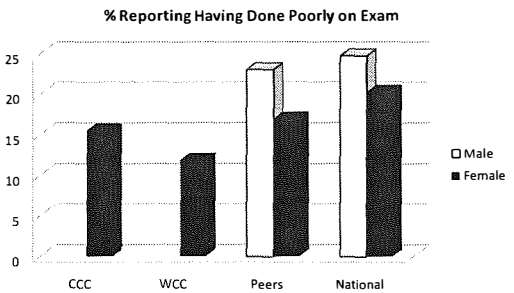


Figure 6. Consequence—Did Poorly on an Exam



Appendix 2: WWIT Campaign Elements Figures 7-9

Figure 7. On Campus Place-Based Visibility Posters

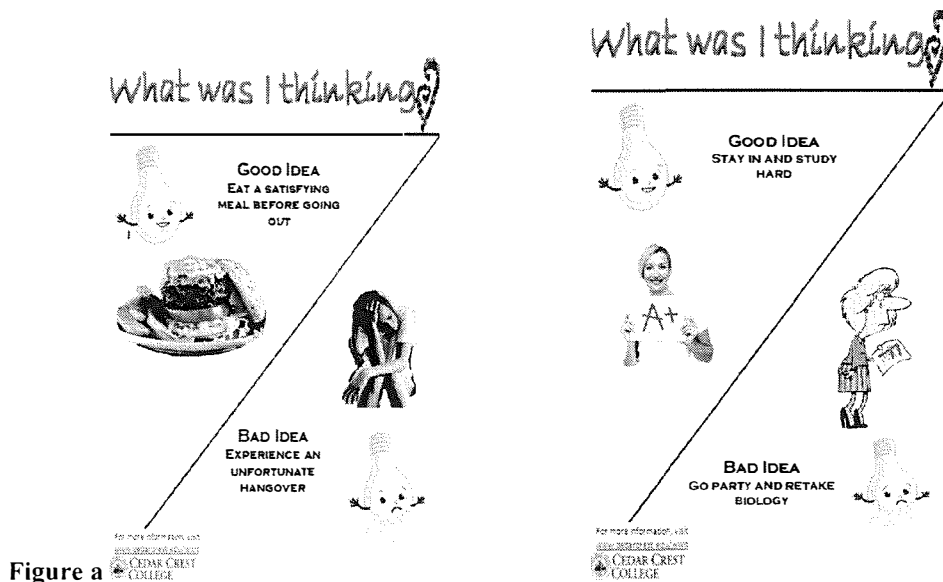


Figure 8. The Front and Back Sides of the Party Smart Card

ALCOHOL IMPAIRMENT CHART											
APPROXIMATE BLOOD ALCOHOL PERCENTAGE											
Drinks	Body Weight in Pounds										
	90	100	120	140	160	180	200	220	240		
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	ONLY SAFE DRIVING LIMIT
1	.05	.05	.04	.03	.03	.03	.02	.02	.02		Impairment Begins
2	.10	.09	.08	.07	.06	.05	.05	.04	.04		Driving Skills Affected
3	.15	.14	.11	.10	.09	.08	.07	.06	.06		Possible Criminal Penalties
4	.20	.18	.15	.13	.11	.10	.09	.08	.08		
5	.25	.23	.19	.16	.14	.13	.11	.10	.09		
6	.30	.27	.23	.19	.17	.15	.14	.12	.11		Legally Intoxicated
7	.35	.32	.27	.23	.20	.18	.16	.14	.13		Criminal Penalties
8	.40	.36	.30	.26	.23	.20	.18	.17	.15		
9	.45	.41	.34	.29	.26	.23	.20	.19	.17		
10	.51	.45	.36	.32	.28	.25	.23	.21	.19		


Your body can get rid of one drink per hour.  
Each 1 1/2 oz. of 80 proof liquor, 12 oz. of beer or 5 oz. of table wine = 1 drink.

Party Smart Checklist:

- o Photo ID
- o Bottle of Water to sip in between drinks
- o Allentown Taxicab Company 610-434-8132
- o Charged Cell Phone
- o Snacks

Figure 9. Facebook Campaign

**Members**  
Displaying 8 of 74 members [See All](#)



Heather Ashley Sommer  
Amanda Dobbs  
Katherine Stevenson  
Jenna Urban  
Claudia Pozo  
Rebecca Getz  
Adam Waring  
Beckie Kassin

**Group Type**  
This is an open group. Anyone can join and invite others to join.

**Admins**

- Jasmita Saini (New York, NY) (creator)
- Rachel Vogel
- Amanda Dobbs (Montville Township High School)

**Events**  
2 past events [See All](#)

Perception Bingo  
TCC Cafeteria  
Friday, March 20 at 9:30pm

Perception Twister  
Akeva A in the TCC  
Friday, March 20 at 12:00pm

**Discussion Board**  
Displaying 1 discussion topic [Start New Topic](#) | [See All](#)

**What is Risky Behavior**  
1 post by 1 person. Updated on March 15, 2009 at 11:07am

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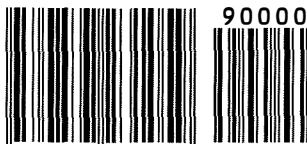
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