

gests that the normal probability distribution may be adequate. See: Arleigh W. Walker, "How to Price Industrial Products," *Harvard Business Review*, Vol. 45 (September-October 1967), pp. 125-132. Goodness-of-fit tests did not reject the assumption that the normal probability distribution is consistent with the data. The results of the test appear sufficient to justify using a normal probability formula.

6. George S. Day, Gerald Eskin, David B. Montgomery, and Charles B. Weinberg, "Nikoll Electronics, Inc. (A)," *Cases in Computer and Model Assisted Marketing: Planning*

(Cupertino, California: Hewlett-Packard Company, 1973), pp. 33-39.

7. Plus or minus 1.96 standard deviations is more precise, but the use of 2 is sufficient for this model's purpose.

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## Appendix 1

### The Mathematics of Underbidding

#### Core Competitors

Let,

$P_{ci}(B)$  = the probability that core competitor 'i' bids above 'B'.

$p_i$  = the probability that core competitor 'i' places a bid on the contract.

$P_c(B)$  = the probability that all core competitors bid above 'B' or don't bid at all (the bid 'B' will be listed under all core competitors).

Then,

$$P_c(B) = \prod_{i=1}^n [p_i \cdot P_{ci}(B) + (1 - p_i)],$$

for 'n' core competitors.

The symbol  $\Pi$  indicates continuous multiplication of the term in brackets.

#### Peripheral Competitors

Let,

$P_p(B)$  = the probability that a member of the peripheral competitor group (an average peripheral competitor) bids above 'B'.

$\bar{n}$  = the expected number of peripheral competitors bidding on the contract.

$P_p(B)$  = the probability that all peripheral competitors bid above 'B'.

Then, for  $\bar{n}$  known with certainty,

$$P_p(B) = P_p(B)^{\bar{n}}$$

and, for  $\bar{n}$  not known with certainty (the Poisson model for the number of peripheral competitors).

$$P_p(B) = \sum_n^{\infty} = 0 \frac{\bar{n}^n e^{-\bar{n}}}{n!} \cdot P_p(B)^n$$

The symbol  $\Sigma$  indicates continuous summation for all possible numbers of peripheral competitors. The computer program cannot proceed to infinity, of course, and stops when 'n' is greater than ' $\bar{n}$ ' and the Poisson term is less than .001.

#### All Competitors

The probability of underbidding all competitors,  $P_u(B)$ , with a bid of 'B' is given by:

$$P_u(B) = P_c(B) \cdot P_p(B)$$

## A Test of Positive Reinforcement of Customers

J. RONALD CAREY  
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At companies such as *Emery Air Freight* a new technique is being used to improve employee performance. First, company goals are established; then a procedure is devised so the employees are

able to learn how well they are doing. Employees who meet or exceed goals are rewarded through self-fulfillment, praise and recognition. So far, the experimenting companies have been pleased with

the increases in productivity and efficiency that their methods have helped achieve. The technique is based upon old common sense conceptions of praise for a job well done and newer social science research.

In both the psychological and social-psychological literature, a great deal of attention has been given to the role of reinforcement in the encouragement and maintenance of desired behavior. Positive reinforcement has been seen as a particularly promising technique for perpetuating desired responses. Positive reinforcement involves rewarding desired behavior when it occurs, e.g., letting people know when they have done a good job. According to the theory, and the extensive research supporting it, behavior is more likely to be repeated if it is rewarded. Also, according to the research, positive reinforcement is much more effective than negative reinforcement. Watching for employees to do something well and rewarding them is more apt to produce more well done jobs than watching for mistakes and punishing them.

This study was performed to determine if positive reinforcement—of customers—could be used to increase sales. What effect would showing appreciation, by thanking customers for previous business, have on future sales?

The study was conducted in 1975. The retail establishment chosen was a small, independent jewelry store located in a central Texas city of 22,000. The store was one of three jewelry stores in the city and was located next door to one of its competitors. It was owned by one of the authors.

The names and phone numbers of all active charge account, zero-balance charge account and cash customers were assembled (N = 440). Each of these categories was divided into thirds so that each type of customer was represented equally in the two experimental groups and the control group. The three groups were chosen to test what effect positive reinforcement alone and also positive reinforcement with an inducement to buy would have on sales. One group was called and thanked for their business; one group was called, thanked for their business, and told of a special sale; the third group was used as a control and

therefore not called. One half of the calls were made by a female interviewer, the other half by a male.

The first group was told: "Hi, I'm [caller's name] from M & M Jewelers and I would like to thank you for being one of our customers." The second group was told: "Hi, I'm [caller's name] from M & M Jewelers. I would like to thank you for being one of our customers, and tell you about our big diamond sale. During the next two months we will offer 20% off all diamonds in stock." The interviewers were instructed to be cordial and to continue the conversation if the customers in either group desired. Most, especially in the first category, seemed surprised and just said, "Thank you." A few hung up briskly. Those who did talk were pleased with the call. The typical customer response on the phone was neutral. No one acted as though they would make a purchase or take any other action as a result of the call.

The female caller contacted 79% of her names and the male caller contacted 77% of his names.

The response in the store was quick. Almost immediately, people, mainly from the first group, came in commenting about, "that nice person who called," saying they had never had a call like that before. There were no differences in the response to the sex of the caller. This control proved unnecessary as customers reacted equally well to both. Many wanted to meet the person who called.

From customers' reactions it was obvious the most effective message was the simple "thanks" for the business. Apparently this seemed more sincere than the second, which was perceived as a promotion rather than an appreciation call.

This interest by the customers was transformed into sales. There was a 27% increase in the test month over the same month of the previous year. This figure is all the more impressive when compared with the year-to-date sales which were down 25%. And, although sales dropped slightly the next month, every month after that was positive.

Purchases made by the customers in the control group were unchanged. The entire increase was among the customers who were called. Approximately 70% of the increase was in the group who received the appreciation call, with the remaining 30% in the group that was given the inducement. There were also significant differences in the type of customer who responded. The sales of active charge customers went up slightly. Over 80% of the increase was split evenly between the zero-balance charge account customers and the

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cash customers. It appears that the effect is strongest on the "dormant" customer or one who trades less regularly. Thus, this may be a good method to arouse or regain old customers.

It is possible that the reason for the decline in the second month (and part of the increase in the first month) was the advancement of purchases. People who were considering buying a month later may have been stimulated to buy sooner. These advanced purchases would probably not go beyond the second month as that would be considered too far ahead of the actual time needed. Therefore, the increase in the first month may represent the combination of added sales caused by the calls plus advanced sales from the second month. The decline the second month may be due to the fact that those purchases stimulated by the calls had already been made. The return to less dramatically increased sales in the following months may indicate the lasting effects of the calls.

During the test month, newspaper advertising remained constant and radio spots were diminished. There were no special events within the surrounding business community. There was no change from routine business operations.

An additional, and unexpected, benefit was the sizeable increase in customers paying their delinquent accounts. Although no financial matters were discussed on the phone, the call apparently was enough to cause action.

Our findings indicate that positive reinforcement of retail customers will have a favorable effect on sales. From our experience we also have

some specific suggestions for its continued use. In order to make the most effective use of this positive reinforcement technique:

- Have the caller use his or her name so the contacts seem personal.
- Keep it short. Two sentences are enough to get the message across and still allow your customers time to digest the content.
- Match addresses. Don't call one person and miss the next door neighbor or you may offend the latter because of the exclusion.
- Figure on twelve completed calls per hour.
- Best completion rates occurred early Friday evening, late Saturday morning, and on Sunday afternoon.
- Convey a genuine feeling—don't mention anything that sounds like a promotion.
- Be sure the callers sound friendly. This can be difficult after several calls. They will need a break after about 45 minutes.
- Speak slowly. Your customers are not used to this kind of call, and you want to be sure they understand.
- Be prepared to continue the conversation if they want to. Don't hang up too fast.
- Speak only to the customer, not the person who happens to answer.
- Your files need to be up-dated to provide the caller with correct names and numbers.
- Check your results—record purchases and payment of delinquent accounts.
- Tell your employees what you are doing so they are not surprised when your customers come in and comment about the "thank you" calls.

## Setting Objectives and Evaluating the Effectiveness of Trade Show Exhibits

SUZETTE CAVANAUGH

**Trade show exhibits** are certainly not new media. They are one of the earliest methods of selling—traceable to ancient Biblical marketplaces—and were conceived of long before

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the opportunities afforded by Gutenberg's movable type.

Through the centuries, the quantity of wares has increased to the extent that the "exhibit" marketplace today is much more than just a place to sell one's wares . . . it is necessary to differentiate between the wares available. In addition, management will agree that it certainly is more