

Retailing

How do “smart carts” change shopper behavior?

What’s the tipping point for an innovation? “Smart” shopping carts can scan and tally a running total of customer purchases. A wide majority of retailers and consumers want them, but they remain a rarity in grocery store aisles. The carts are not cheap, unions might take action to safeguard jobs, and store owners worry that the system would increase shoplifting by patrons who conveniently forget to scan some items.

Given these barriers, it seems likely that retailers would continue to ignore smart carts. But what if store owners had a fuller understanding of how smart carts might impact the bottom line? Research by Koert van Ittersum and Daniel Sheehan of Georgia Institute of Technology, Brian Wansink of Cornell University, and Joost M.E. Pennings of Maastricht University offers new insight into how spending feedback affects grocery shopping behavior, whether the customer in question is a diehard coupon clipper or a free spender.

Their recent paper, “Smart Shopping Carts: How Real-Time Feedback Influences Shopping,” builds on earlier research by van Ittersum that studied whether and how consumers keep track of in-store spending. The discovery that shoppers on a strict budget often rely on a calculator to keep track of their spending was the starting point for their research on the effect of smart carts. After all, wouldn’t penny-pinching shoppers flock to a store that simplified the task of sticking to a budget by including a built-in scanner with every shopping cart? Not everyone feels the need to keep a close eye on their wallets, however, so van Ittersum and his team also con-

sidered non-budget shoppers in the three studies that anchor their findings.

The first two studies were conducted in a fictitious online grocery store. In the first, 125 participants were given a shopping list with 16 product categories and asked to make their shopping selections by choosing between a cheaper store brand and a more expensive national brand. Participants were divided into four groups: budget and non-budget shoppers receiving real-time feedback and budget and non-budget shoppers with no feedback. (Shoppers were not required to make a purchase in each category.)

Budget shoppers spent 14% more

Results showed significant effects from real-time spending feedback. Budget shoppers who were given a running tally of their purchases spent 14.3 percent more of their \$60 budget (without going over that amount) than those who did not have that information. For non-budget shoppers, the effect was the opposite; those who received real-time spending feedback spent 8 percent less than those who did not have that information.

“If you’re on a budget and don’t have a clear sense of how much money you’re spending, you get nervous and spend significantly less—you play it safe, so to speak,” van Ittersum notes. “Whereas if you’re on a budget and know that you have \$5 left, you have a tendency to spend that money on more groceries.”

The effect is a bit different for those without a spending limit: “Informing

non-budget shoppers about how much they’re spending increases the importance of price in purchasing decisions,” van Ittersum explains. “Product price begins to matter more than product preference, and shoppers control their spending as a result.”

For the second study, van Ittersum and his colleagues invited 194 participants to go shopping with a pre-tested list that included 15 product categories, eight of which were hedonic products such as cookies or potato chips. (The group was once again divided into the four categories of budget/non-budget



If you’re on a budget and find out that you have \$5 left, you will probably spend it on more groceries.

and feedback/no feedback.) For those on a budget, the limit was \$35.

As an incentive, one in ten shoppers was eligible for a prize package; non-budget shoppers could win the groceries in their cart and cash up to \$75; budget shoppers had the same incentive but only if they stayed in the \$35 spending limit.

The findings of this experiment were consistent with that of the first; budget shoppers who received real-time spend-

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ing feedback spent just over 9 percent more (without exceeding their budget) than those who did not, while spending feedback reduced spending among non-budget shoppers by just over 12 percent. The number of hedonic products purchased by budget shoppers increased with real-time spending feedback (it remained unchanged for non-budget shoppers). In addition, budget shoppers were more

experience of budget shoppers and increased the likelihood that they would return to the store; for non-budget shoppers he found a slight negative effect, although the customer's intention to return to the store remained unchanged.

"Budget shoppers have a better experience when they know how much they're spending because they're not so insecure and uncertain," van Ittersum explains. "Non-budget shoppers are less excited about getting the feedback. If you don't have a budget, you don't necessarily want to know how much you're spending."

Finally, van Ittersum and his team conducted a field study in

a grocery store in Atlanta, intercepting 198 customers at the door. Shoppers intending to shop for 10 or more items were allowed to participate and asked if they were on a budget. Half of the budget and non-budget shoppers were asked to use an iPad mounted on their cart to track in-store spending; all returned to the interviewer after checking out to answer questions and allow their receipt to be copied. (A cash-grocery incentive similar to the one used in the second study was offered as well.) The results were a confirmation of the team's earlier findings.

"The combination of studies robustly suggests that real-time spending feedback has a differentiating impact on budget versus non-budget shoppers," says van Ittersum, adding that ample opportunities exist for retailers to act on this information. If budget shoppers spend more when using smart carts, for example, it may be worthwhile to implement the system at stores in zip code areas with

lower income levels. In the case of non-budget shoppers, chains with higher-margin store brands would see benefits as well, since non-budget shoppers receiving real-time spending feedback decreased their spending by increasing the number of store brand products they purchased.

The system also could be used to conduct market research and offer discounts, coupons, and cross-promotions. If a customer just purchased cat food, for example, a coupon for cat litter might pop up on the screen. A shopper scanning a bag of rice might get a suggested recipe and list of ingredients. The optimal timing of these prompts during the shopping trip is a possible area for further research.

Van Ittersum acknowledges that these findings aren't likely to result in a flood of smart carts and hand-held scanners at your local grocery store—the down economy, a high required investment, and union dissent are still barriers to adoption. But understanding how real-time spending feedback affects spending and buying patterns—whether a customer is pinching pennies or living large—offers marketing managers an important piece of the decision-making puzzle for an innovation shown to have positive effects on the bottom line.

BY JULIA HANNA



From "Smart Shopping Carts: How Real-Time Feedback Influences Spending" (MSI Report No. 11-117)

Non-budget shoppers decreased their spending by buying more store brands.

inclined to buy national brands when they found they had a little extra money to spend. "I have extra money, let me spend it on items I may not normally buy," van Ittersum summarizes.

Non-budget shoppers bought cheaper brands

Interestingly, non-budget shoppers who received the sort of real-time spending feedback they would get from a smart cart did not necessarily decrease the number of products they purchased; instead, they increased the number of less expensive store brands in their carts and cut back on the number of national brands. "They could decide to purchase fewer items," van Ittersum comments. "Instead, non-budget shoppers manage to control their spending by replacing more expensive national brands with lower-priced store brands that still allow them to buy what they feel they need."

Van Ittersum also found that spending feedback improved the shopping

