

new technology in the supermarket

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Another marvel of computer technology—the universal product code (UPC) scanning system—has found its way into the nation's supermarkets. An in-store computer links a laser scanner with an electronic cash register. Introduced in 1974, use of the UPC scanning system has grown rapidly, and now a fourth of the nation's supermarkets have scanners.¹

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Extension agents and specialists can help consumers recognize and make full use of this new shopping technology. Consumers need help in understanding and interpreting tape information from the scanner. More important, they need instruction to improve their shopping practices and use of scarce dollars. In the New Orleans Metropolitan area, for example, the LSU Cooperative Extension Service has included information on the UPC scanning system in its new Teletips automatic telephone information retrieval system. The taped message prepared by Extension specialists provides consumers neutral, independent information in the use of the scanning system.

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What's in the Code?

The key to a scanning system is the UPC, a bar code found on more than 90% of supermarket items from magazines to hardware to food (see Figure 1). The code on each item is passed over a glass-covered slot in the checkout counter, where a laser scanner reads the code and transmits information to an in-store computer. The price previously entered into the computer for each item then flashes on the visual display unit of an electronic cash register and is simultaneously printed on the receipt tape.

The first five digits of the code designate the manufacturer, the next five designate the specific product. The retailer also may make UPC labels for products not coded by the manufacturer.



Figure 1. Example of a Universal Product Code (UPC).

Scanner Installations

The first UPC scanning system was installed in 1974 at a Marsh Supermarket in Troy, Ohio. More than 5,000 supermarkets now have the system, according to the Food Marketing Institute.² Indications from the food industry point to a continued increase in the use of scanner systems.

Coding supermarket products for price scanners is just the beginning for such technology. Looking to the future, not only will food manufacturers mark grocery items with the UPC code, but manufacturers of general merchandise are likely to mark items with the OCR code (optical character recognition).

On an experimental basis, Levi Strauss and Company now marks its merchandise with the machine readable code, providing such information as department, class, size, and color. Instead of the fixed slot scanners used in food merchandising, a number of retailers are now using hand wands to read the code. Penney's, Sears, and Wards have invested heavily in them, because, as in the supermarket, they cut down price errors as well as increase labor productivity.³ Even Pitney Bowes and Burroughs are now installing OCR scanners in post offices across the country to aid in sorting mail.

Benefits

Scanning is designed to benefit the consumer by making shopping quicker, easier, and more pleasant. Potential benefits include speedier checkouts and more detailed

receipts that list not only the item price, but also its brand name and size.

Accurate receipts will more likely result from the use of scanners since there's less chance of human error because of the reduced manual input. Reduced prices result when the retailer passes on cost savings to the consumer.

The retailer benefits by increased labor productivity, reduced overall labor costs, more accurate inventory control, better tracking of customer and product flow, and eliminating cashier errors. Scanning enables the retailer to get more timely and accurate management information on which to base decisions related to product mix and pricing.

Concerns

Initial reactions to scanner systems have been mixed. Retailers, for the most part, welcomed scanners as a way to reduce costs and provide speedier checkout for consumers. On the other hand, some consumers feared that scanners might bring an end to individual pricing of products, making point-of-purchase shopping comparisons more difficult. Despite some initial consumer concern, the growth in scanner use indicates they'll continue to be a vital part of retailing technology.



Using the UPC scanning system in supermarket.

Shoppers' Reactions

Personal interviews were conducted with 158 randomly selected shoppers at 2 Baton Rouge, Louisiana, supermarkets equipped with scanning systems. Three interviewers spent two days in each store intercepting every fourth shopper at the checkout. Interviews were conducted on a weekend and weekday to ensure full-time workers would be represented in the sample. A broad cross-section in terms of age, income, and education was obtained.

As Table 1 shows, most shoppers weren't familiar with the term "universal product code." They recognized it, however, when the symbol was described, showing they were unfamiliar only with terminology, not with the printed code itself. Several shoppers also thought that prices were included on the bar code—an incorrect assumption.

Some questions were designed to explore perceptions of possible benefits of the scanner. A large majority of shoppers said the scanner reduced time spent waiting in line and checking out. Slightly more thought it improved accuracy in checkout pricing because it eliminated human error. These findings were supported by other researchers.⁴

Three-fourths of Baton Rouge shoppers in the study said they used the detailed scanner receipt, but no differently than the conventional receipt. Other research coincides with these findings.⁵

Most Baton Rouge shoppers had trouble finding prices of goods not individually marked, but half of them said it didn't

Table 1. Shoppers' reactions to scanners.

Question	Answer	
	Yes	No
Do you know what the universal product code is?	35%	65%
Do you think it takes less time to check out with the scanner?	82	18
Do you think there is improved accuracy in price ring up?	83	17
Do you use the detailed receipt?	76	24
When goods are unmarked, do you have difficulty knowing the price?	66	34
If so, does this bother you?	57	43
Do you feel there is a decrease in personal interaction at the checkout counter?	27	73
If so, does this bother you?	67	33
Do you shop here because it has the scanner?	10	90

bother them. A previous study concluded also that removal of item-pricing wasn't as important an issue in the minds of as many consumers as had been believed.⁶ Although price removal has been a sensitive issue among shoppers in scanner-equipped stores, these studies indicated it may not be major concern.

A few shoppers said personal interaction at the checkout counter was decreased, but still fewer were bothered by it. "I have no interest in conversation in the checkout line," one shopper said. "I just want to get out of the store."

Only a tenth of Baton Rouge shoppers chose the supermarket because of the use of scanners. A previous study found only seven percent reported that the presence of scanning systems would influence their store selection.⁷

Implications

Explaining how a scanner works may help alleviate consumer misunderstanding. Field trips to stores that use scanners and demonstrations for consumers are other ways to inform the public.

Fear of scanning pricing errors might be reduced by stressing the point-of-purchase accuracy of scanning equipment and encouraging customers to learn to watch as products are read by the scanner. Further education on the use of store shelf and unit pricing may help consumers cope with reduction or elimination of individual product pricing.

Programs that focus on detailed receipts could help consumers control their grocery dollars. They could be taught how to use receipts to make short- or long-term price comparisons, and how to make price comparisons between stores and between sizes and brands of items.

Extension professionals could also use detailed receipts for financial counseling on household expenditures. Receipts could help the shopper see how much money one spends on nonessentials as well as on products for basic household operations.

Evidently, much may be taught using detailed information available as a result of the new scanner systems. This information can have a real impact on future Extension programming in consumer affairs and family life. More and more retailers will likely add scanners, and many of Extension's clientele could benefit from instruction on how to best use the information acquired from this new technology.

Footnotes

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