



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



## CONSUMER AWARENESS AND NUTRITION EDUCATION PROGRAMS: COMMENT

*Daniel S. Tilley*  
*Oklahoma State University*

The preceding papers by William J. McEwen and Bette Jane McCabe discuss very different types of programs and how to evaluate their effectiveness. McEwen writes from the perspective of a commercial (media) advertiser where "sales," whether they be product sales or votes, are generally the ultimate objective. McCabe writes from the perspective of educational programs with changing knowledge levels or attitudes as the goal. Publicly supported educational programs designed to create a public that is better informed about the nutritional characteristics of products consumed are generally less concerned about specific products but more concerned about nutrient intake.

While both authors are dealing with long-run phenomena, the educational programs appear to have inherently longer-run objectives than does media advertising. Within the educational program area, there appears to be one subset of programs that use media in a fashion similar to that used by commercial firms with sales objectives and a second subset of programs delivered by personal contacts (i.e., teachers, nutrition aides) with well-defined and, to some degree, confined audiences.

My comments are separated then into evaluation of mass media executions and campaigns, and evaluation of programs that rely on personal delivery systems.

### Mass Media Campaigns

The basic evaluation issue of any mass media campaign has to do with whether behavior patterns change. McEwen spends a considerable amount of time discussing the underlying theory that relates responses to the stimuli in the marketplace while McCabe implicitly assumes that exposure is the goal. Changes in consumption patterns are given some mention when McCabe discusses nutritional labeling program evaluation.

Several other papers in the conference deal with using sales data to evaluate advertising program effectiveness and the strengths and weaknesses of those evaluation procedures. McEwen is addressing a

shorter-run problem related to how advertising can be evaluated prior to the availability of sales data and analyses of that data. I would hope that he would still support the concept of having longer-run sales-response studies completed, given that advertising is designed to impel some action desired by the advertiser. Indeed, as McEwen suggests, it is expensive to test all advertising using sales as a measure of effectiveness because of the cost in dollars and risk, but it is also expensive *not* to use sales as a method to appraise the marginal costs and benefits of advertising. However, the cost and risk associated with using sales as a sole measure of effectiveness encourages us to use intermediate measures of effectiveness as guidelines in the short and intermediate time period.

McEwen's second and third reasons for *not* using sales as a measure of advertising effectiveness are considerably less credible. The second and third points are that responses are complex, advertising takes time to be effective, and advertising may interact with other parts of the environment and marketing mix. These points are merely a call for doing multivariate analyses that account for interaction effects, measure current and lagged effects of advertising, and account for as many factors as possible that will explain sales variation. Analyses of this nature are being done. Whether they can be done in a specific situation and be considered reliable is an empirical question. As an economist, it is clear that multivariate statistical analyses should be attempted for any long-term program. These studies need to be frequently updated and tests for parameter stability may be desirable as new data are added.

Econometric analyses do not answer all of the critical questions that marketing researchers will want to answer. These analyses seldom deal with "how" advertising works or whether particular executions or campaigns are more or less effective than others.

The alternative ways to evaluate program effectiveness should thus not be considered substitutes for sales measures but should be considered as short- or intermediate-run complementary evaluation methods.

It appears that the alternatives discussed by McEwen are designed to deal with the short- and intermediate-run issues. McEwen's call for a theory to connect the short- and intermediate-run results to an ultimate sales objective is important if the long-run sales objective is to be met. McEwen suggests using a classification system adapted from Vaughn.

The Vaughn grid proposal used by McEwen is, rather than a  $2 \times 2$  grid, a continuous two-dimensional scale measuring rationality and involvement. One might question whether two dimensions are sufficient. There are many types of emotions and ways of becoming involved in a product purchase decision. The framework does provide a useful framework for discussion, however. It is not difficult to agree

that marketing strategies are best designed and evaluated if the degree of emotion and involvement are taken into consideration.

The Vaughn grid is used to classify consumer decisions. Unfortunately, it would appear that a consumer's decision about a product category purchase may not be fixed in the grid. It may be emotional and low-involvement at one purchase occasion and rational and high-involvement at another purchase occasion, depending on the occasion. Negative publicity about a product like the salmonella problem with milk may cause overnight shifts in the position of products in the grid. In addition, consumers may not cluster neatly within the grid for every product. Figure 1 illustrates the problem. Panel A illustrates a situation in which consumers are relatively uniform with respect to rationality and involvement. Panel B illustrates a situation with little uniformity.

In a Panel B situation, the evaluation measures suggested by McEwen are certainly less clear than in Panel A. In addition, it is possible that buyers and non-buyers of a product cluster differently for a particular product category.

The above comments are really an extension of, and support for, McEwen's basic contention that decision processes are not the same for all products. The extended statement is that decision processes may not be the same for all products, consumers, purchase occasions, levels of involvement, or degrees of rationality, and that these relationships may change over time. An economist is likely to attempt to analyze

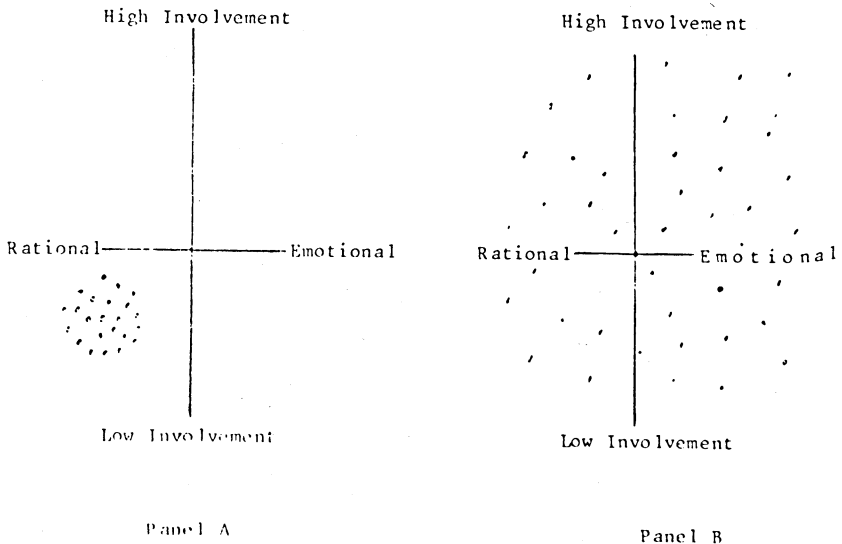


Figure 1. Alternative locations of consumers with respect to involvement and rationality. Each dot represents one consumer.

these decision processes by using socioeconomic characteristics as proxy variables for levels of involvement or emotion.

The complexity of the decision processes and the ability of those processes to change through time makes the job of evaluating advertising an extremely difficult and challenging artistic research task.

### Personally Delivered Nutritional Education

McCabe's paper discusses a number of programs directed at mass audiences and programs that involve personal delivery of nutritional education information to specific target audiences. The targeted audiences are often school children and/or low-income or elderly households which are deemed nutritionally deficient. These programs are designed to promote nutrition or nutritional characteristics of food products. My comments will be restricted to those programs supported by commodity groups or government agencies as opposed to those sponsored by particular brands.

It appears clear to me that the theoretical framework for evaluating nutrition education programs is readily available. The conceptual framework is one in which nutrients, as product characteristics, are the arguments of consumers' utility functions. The nutrients come from foods via a transformation matrix. This framework, originally developed by Lancaster (1971), has been modified and used by a number of economists including Ladd [2] and Brorsen [1] to study a variety of demand related problems. Nutrition education programs could then be viewed as attempting to alter the nature of the utility function and also creating more information and perhaps altering consumers' ideas about the transformation (or technology) matrix that represents the quantities of nutrients contained in different foods. Indeed, if new cooking methods are taught, the transformation matrix itself may be altered.

The empirical question would be whether the quality of diets is changed. One could also examine whether the implicit prices for nutrients have been altered in a hedonic price framework. Perhaps one of the outcomes of this conference will be to expand the number of economists interested in nutrition education program evaluation.

In situations in which there are specific identifiable audiences, pre- and post-testing can be used to measure learning. Questions can also be asked about changes in behavior after the program. Carefully applied principles of experimental design and testing should allow valid analyses of the program impact.

Perhaps the most important gap in McCabe's paper is the absence of any discussion of the cost effectiveness of the programs. Evaluation implies comparing the benefits of a program with the cost. Without a discussion of the costs of the program, the enthusiasm shown for nutrition education programming is not warranted. This is not to imply

that quantifying the benefits of a more nutritionally conscious population will be easy for publicly funded programs. The benefits list could include reduced health care costs and improved learning performance of young people.

Nutrition education programs sponsored by commodity groups have more direct product sales goals and need to be evaluated along with the other components of the marketing mix. Since the funds used for nutrition education programs could be used for more direct selling approaches, the need to allocate funds across programs requires comparable evaluations that deal with cost effectiveness.

## Summary

Both authors exhibited some reluctance to use economic analysis of costs and benefits of expenditures for commodity promotion. The difficulty and complexity of properly connecting attitude changes to changes in behavior create numerous opportunities for economists to become involved in program evaluation. The papers challenge economists to provide complex analyses conducted by objective researchers and to communicate those results to decision maker audiences. To be effective analysts in this arena, economists are going to best be of service if they can work with market researchers, adopt ideas of other social sciences, and are willing to communicate with decision makers. An economist's important role will be to assure that when the analyses are completed, the important costs and benefits questions can be objectively answered.

## REFERENCES

- [1] Brorsen, B. Wade. "A Hedonic Price Model for Rough Rice Bid/Acceptance Markets." *Amer. J. Agr. Econ.* 56 (1984): 156-163.
- [2] Ladd, George W. "Research on Product Characteristics: Models, Applications and Measures." Iowa Agr. Exp. Sta. Res. Bull. No. 584, Iowa State University, 1978.
- [3] Lancaster, K.J. *Consumer Demand: A New Approach*. New York: Columbia University Press, 1971.
- [4] Vaughn, Richard. "How Advertising Works: An FCB Strategy Planning Model." Chicago: FCB Communications, 1979.