Views of Theory, Research, and Practice: A Survey of Nutrition Education and Consumer Behavior Professionals

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INTRODUCTION

Healthful eating plays an important role in growth and development, health maintenance, and disease prevention (1,2). Efforts to promote healthful eating patterns can reach and influence large segments of the population when educational messages are provided in settings where people select and purchase food (e.g., on food packages and in grocery stores, cafeterias, and restaurants) (3). Two bodies of theory and research have been developed that can contribute to the success of behavior change strategies in these settings: consumer behavior and nutrition education. *Consumer behavior* theory and research has emphasized small-scale, controlled studies (often in laboratory settings) of how consumers acquire and process information in making product choices (4,5). *Nutrition education* theory and research has sought to improve and assess the effectiveness of a broad range of strategies for promoting healthful eating in natural settings (6,7).

For nutrition education to be effective, practitioners and researchers need both an understanding of relevant theories of consumer behavior and dietary behavior change and the ability to use these theories skillfully in practice (6,8). Theoretical models and theory-driven strategies from consumer behavior and nutrition education overlap but differ in their respective emphases. A combination of theories from these disciplines has the potential to result in more successful, adoptable, and replicable efforts to promote healthful food choices.

When behavioral and educational theories are applied in research and practice, they guide the design, implementation and testing of programs to achieve desirable goals. Theories that gain recognition in a discipline shape the field, help define the scope of practice, and influence the training and socialization of its professionals (9). Therefore, a survey assessing both professionals' familiarity with and their own views regarding the importance, timeliness, and usefulness of various theories should reflect the dominant approaches and trends in a field.

Some social scientists contend that practitioners are biased against theory and scientific scholarship, valuing research only in terms of its pragmatic contribution (9). Thus, it is pertinent to ask whether researchers and practitioners share similar views about theories. Sims' survey of researchers and practitioners in nutrition education indicated that both groups value interdisciplinary approaches to nutrition education (7). However, no research to date has examined the extent to which these groups differ in their familiarity with theories, and whether they agree or disagree about which concepts are most important and therefore most useful.

The survey reported here aimed to determine the views of researchers and practitioners in the fields of consumer behavior (CB) and nutrition education (NE) about various theories that can be used to design strategies to promote healthful food choices. The objectives of the survey were to assess the repondents' opinions of the importance of concepts from selected theories, their familiarity with the theories, and the perceived currency (i.e., "state of the art") of the theories. The survey also had two ancillary aims: to examine the differences between the views of nutrition educators (NE) and consumer behavior (CB) professionals, and to examine researcher-practitioner differences.

METHODS

Instrument development. Fifteen theories were identified through two extensive reviews of the recent literature in nutrition education, consumer behavior, and health education (8,10). A subset of ten theories was selected as most often identified in recent journals and texts (11). The survey questionnaire included four sections: background information and demographic data; 20 statements reflecting central concepts from the 15 theories, which were to be rated for their importance on a scale of 1 to 5; a list of the subset of

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ten theories, asking about the respondents' familiarity with them and to what extent they reflect "*current thinking* in your field"; and 20 additional statements regarding opinions and activities in research and practice, which were to be rated on a five-point scale from strongly agree to strongly disagree (12).

The section of the questionnaire that addressed the importance of core concepts from various theories operationalized the concepts by applying them to the area of understanding consumer food choices. Because of the difficulty of operationalizing these concepts, fifteen expert reviewers were asked to help establish both face and content validity. In order for a statement to be included in the final survey, at least 75% of the reviewers had to be able to rate the theory-item correspondence confidently and at least 75% of the raters had to agree that it successfully reflected the theory. Twenty items were retained, including multiple items for four theories (see Table 1).

Based on the expert review, the survey instrument was revised and shortened. Two versions of the instrument were created to permit a test of the effect of item ordering. A post hoc test of split-half reliability revealed that response patterns were independent of the order of items ($r = .88$).

Sampling. Four groups of respondents, representing researchers and practitioners in consumer behavior (CB) and nutrition education (NE), were identified. CB respondents were drawn from membership lists of the Society of Consumer Affairs Professionals (SOCAP) for practitioners, and the Association for Consumer Research (ACR) for researchers. NE-practitioner respondents were current members of the Society for Nutrition Education (SNE). NE-researcher respondents included 30 researchers who participated in a post-conference research meeting after the 1986 Leading Edge Conference (13) and senior authors of articles published in the Research section of the *Journal of Nutrition Education* during the preceding five years. One hundred respondents were identified from each group. For the first three groups, systematic random samples of 100 names were selected. NE researchers were identified by a backward search until 100 were chosen. To avoid duplication, a replacement was chosen for the practitioner sample if a name appeared on both the researcher and the practitioner lists.

Data collection. A modified Dillman approach (14) was used to achieve the optimal response rate. A one-week reminder postcard was sent to all subjects, and non-respondents received a second copy of the questionnaire and return envelope after three weeks. Confidentiality was maintained by separating envelopes from the questionnaires when they were returned. Questionnaires were considered usable if 75% of all items were completed. The overall response rate was 74% ($n = 284$), with 83% of the Nutrition Education (NE) sample and 64% of the Consumer Behavior (CB) sample responding. Among practitioners and researchers, 79% and 68% responded, respectively. The lower response from researchers was due to the low response of Consumer Behavior researchers (56%). Non-response analysis indicated that non-respondents were not significantly different on most identifiable background characteristics (i.e., gender, whether or not university-affiliated, researcher/practitioner designation). However, in the CB sample, respondents were more likely than non-respondents to work in food-related organizations.

Data analysis. Data were analyzed using the SPSS-PC program (15). For all variables, frequencies and descriptive statistics were first computed. Chi-square and one-way analyses of variance were used to test for differences between NE and CB, and researcher/practitioner groups (16).

RESULTS

Background characteristics. Of the 284 respondents, 55% were from Nutrition Education (NE) and 45% were Consumer Behavior (CB) professionals. Fifty-five percent were female, 74% were at least 35 years old, and 72% had either a master's or a doctoral degree. The majority (84%) were employed full time, and the most common work settings were universities (40%) or businesses (26%). More than half were either college faculty or held management positions.

Importance of theory-based statements. Table 2 shows the mean respondents' ratings of the importance of various theories for explaining food choices, as represented by statements in the survey, and notes those theories for which ratings were significantly different between NE and CB respondents. All statements received mean ratings of 3 or higher on a scale of 1 to 5 (where 1 = not at all important and 5 = very important). The highest ratings were for theory statements related to perceptual/sensory theories, the behavioral systems approach, social marketing, the health belief model, and adult learning theory.

Nutrition educators (NE) rated adult learning theory, behavioral systems framework, diffusion of innovations, self-efficacy, and social marketing as more important than did consumer professionals. CB respondents viewed attribution theory and fear arousal as more important. Practitioners and researchers also differed in their importance ratings of the theory-based statements. Statistically significant differences indicated that practitioners considered several statements (reflecting theories) to be more important for explaining food choice than did researchers. Practitioners' ratings were higher for the health belief model, the theory of reasoned action, attribution theory, consumer information processing, fear arousal, social learning theory, and problem behavior theory (see Table 2).

Table 1. Statements representing theoretical approaches to understanding and changing factors related to food choice.

Theory	*Statement(s)*
ADULT LEARNING THEORY/PRINCIPLES	Action-oriented activities like cooking and taste-testing demonstrations are a good way to get people to try new healthful food products and recipes.
ATTRIBUTION THEORY	When a product fails to meet expectations, consumers are likely to blame the manufacturer if no other cause is immediately evident.
BEHAVIORAL SYSTEMS FRAMEWORK	Attempts to help consumers make healthier food choices must take into account the impact of cultural and social influences.
CONSUMER ECONOMIC THEORY	Price is one of the most important factors in consumer choice of products.
CONSUMER INFORMATION PROCESSING	The information on nutrition labels "overloads" many consumers. Most people don't even notice the nutrition information signs that some grocery stores display in the fresh produce department. Consumers who are concerned about nutrition often look at nutrition labels prior to making food choices.
DIFFUSION OF INNOVATIONS	When a physician writes a book recommending a new way of eating, the public usually accepts it more quickly than a similar book by a layperson. New foods gain popularity more quickly if they are similar to those which people are already eating.
FEAR AROUSAL	People are most likely to take action in response to frightening health messages.
HEALTH BELIEF MODEL	After being told he has high cholesterol, a middle-aged executive will avoid high fat lunches if he thinks this will help *and* if there are other easily accessible choices.
NORMATIVE THEORY/OPTIONAL DECISION RULE	Consumers often try to "get the most for their dollar" by assessing price-quality trade-offs.
PERCEPTUAL/SENSORY THEORIES	Taste, smell and appearance are powerful factors influencing people's food choices.
PROBLEM BEHAVIOR THEORY (Social Inoculation)	Childhood experiences and low self-esteem are at the root of bad eating habits. If you teach people to resist social pressures to eat like everyone else, they will make healthful food choices.
SELF-EFFICACY	People's judgments about their ability to change their eating habits, lose weight, or lower their cholesterol affect how much effort they put into making changes. If you can get people to believe they can make healthier food choices, they'll probably work hard to make the changes a reality.
SOCIAL LEARNING THEORY	Overeating at holidays is triggered by the many food advertisements, in-store displays, and party buffets that people encounter.
SOCIAL MARKETING	It is necessary to know quite a bit about the audience you are addressing in order to successfully "sell" nutritious foods.
THEORY OF REASONED ACTION	An individual is more likely to plan a healthful party meal if she/he believes the invited guests will appreciate the health-conscious effort.

Table 2. How *important* is the theory represented in each statement for explaining food choice?

Theory Statements[a]	*Mean*[b]	*[Sig.]*[c]	*(n)*
Perceptual/Sensory Theories	4.56	[n.s.]	(282)
Behavioral Systems Framework	4.50	[N**]	(283)
Social Marketing	4.30	[N**]	(284)
Health Belief Model	4.09	[P*]	(281)
Adult Learning Theory/Principles	3.96	[N**]	(282)
Theory of Reasoned Action	3.89	[P**]	(282)
†Self-Efficacy	3.81	[N**]	(281)
†Diffusion of Innovations	3.79	[N*]	(282)
Attribution Theory	3.67	[C**, P*]	(280)
†Consumer Information Processing	3.67	[P**]	(280)
Consumer Economic Theory	3.55	[n.s.]	(281)
Normative Theory/Optimal Decision Rule	3.53	[n.s.]	(280)
Fear Arousal	3.51	[C**, P**]	(280)
Social Learning Theory	3.33	[P*]	(281)
†Problem Behavior Theory (Social Inoculation)	3.08	[P*]	(277)

[a]Underlined theories also included in Familiarity section.
[b]Where 1 = Not at all important..... 5 = Very important.
[c]Significant differences:
N or C = Nutrition or consumer respondents rated higher
R or P = Researcher or practitioner respondents rated higher
* = $p < .05$
** = $p < .01$
†These theories are represented by multiple statements.

Familiarity with theories and their currency. Respondents indicated whether or not they were familiar with each of ten theories when it was identified by its formal name. For each theory with which they were familiar, respondents were asked to rate the extent to which it reflected "current thinking in your field" on a scale from 1 (not at all current) to 4 (very current). More than half the samples were familiar with social marketing (58%), consumer information processing (56%), and social learning (55%) theories. These also received the highest mean currency ratings (2.82, 3.00, and 2.76, respectively). The proportion who were familiar with the other theories were as follows: diffusion of innovations, 45%; Health Belief Model, 43%; attribution theory, 39%; Theory of Reasoned Action, 36%; self-efficacy, 35%; problem behavior theory, 32%; and behavioral systems framework, 31%.

For several theories, familiarity was significantly different between the NE and CB respondents. CB respondents were more aware of consumer information processing (73% vs. 41%, $p < .001$), and NE respondents were better acquainted with the Health Belief Model (64% vs. 19%, $p < .001$) and self-efficacy (46% vs. 22%, $p < .001$). Other notable differences not reaching statistical significance included: CB respondents' greater familiarity with attribution theory (45% vs. 34%) and diffusion of innovations (50% vs. 40%), and NE respondents' higher familiarity with social learning theory (60% vs. 48%).

There were large differences between researchers and practitioners in their familiarity with theories. For eight of the ten theories, researchers were more likely to say they were familiar with the theory by margins of 17 to 46%.

Opinions about research and theories. Respondents were mainly pessimistic or neutral in their opinions about whether research in general, and theory-based research specifically, are useful, practical and timely for designing effective consumer nutrition education. Their mean responses (on a 5-point scale, where 1 = strongly disagree and 5 = strongly agree) included mild disagreement that theory and research are useful ("Theories of human behavior are useful to guide research in consumer education," $\bar{x} = 1.77$; "Research in nutrition education is useful for guiding programs that promote healthy food choices," $\bar{x} = 1.77$). Responses were neutral or slightly negative with respect to the practicality and timeliness of nutrition education/consumer behavior research: "Behavioral or educational research takes too long to be useful," $\bar{x} = 2.73$; "Conducting evaluations of nutrition education programs in retail stores is usually impractical," $\bar{x} = 2.11$; and "Because marketers are so far ahead of social scientists, educational researchers, and consumer researchers, consumer education can't be very effective," $\bar{x} = 2.85$.

DISCUSSION

Over all, respondents agreed that statements based on theoretical concepts are important in understanding how people make food choices. The theories that were most familiar to the respondents were also considered to be the most "current" in both fields: social marketing, consumer information processing, and social learning theory. The findings indicate a substantial overlap in familiarity between those trained in nutrition education and those in the consumer behavior field, but also reveal differences in the theoretical frameworks that are emphasized.

In these findings, a paradox became evident: when asked their general opinions about the value of theory for guiding research and of research for guiding the practice of consumer nutrition education, respondents were usually neutral or pessimistic. This suggests that those surveyed were skeptical about the operationalization of theories for research and practice, and about the conduct of applied research with clear implications for practice. They considered the concepts in this survey to be important, but not readily available or consistently used for research and practice.

Theories are most likely to influence the study and practice of nutrition education when they are familiar and accessible to *both* researchers and practitioners. However, the theoretical and research literatures usually do not sufficiently guide the translation of theories into practical methods (17). This burden rests partly with researchers, who, as this survey revealed, are most familiar with current and emerging theories. The "hands-on" work of applying theories will not be accomplished by researchers and practitioners working separately, but requires an active interchange between these two groups.

These findings are limited by the survey instrument and data collection method: a brief self-administered survey cannot adequately represent the depth and breadth of theories intended to explain food choice and to provide the conceptual bases for nutrition education strategies. The difficulty of representing theoretical frameworks in a limited number of statements also precludes reaching definitive conclusions from these data. The present methodology was regarded as a compromise between complexity (and possibly greater content validity) and respondent burden (with a lower response rate).

One might also question whether the responses are valid or reflect an acquiescent response set. The distributions suggest honest answers: the questions about familiarity, which were most vulnerable to social desirability bias (i.e., people might have felt that answering "yes" made them look smarter) were not unusually skewed with "yes" responses.

This is the first survey to examine nutrition education professionals' opinions about theories of behavior and behavior change, how familiar they are with them, and how useful they consider them to be. Future studies should investigate the impact of curricula, continuing education experiences, and other strategies to facilitate the understanding of and successful application of theory.

Efforts to encourage healthful eating patterns can be more effective if they are based on an understanding of theories of human behavior that help identify, explain, and predict the determinants of food choices. No one theory is sufficient: food choices reflect a combination of environmental, social, personal and biological factors (8,18). The training and socialization of nutrition educators to understand and use a broad range of applicable theories is an ongoing process that depends on dialogue between the worlds of consumer behavior and nutrition education, and the arenas of research and practice.

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