

Food Literacy: How Do Communications and Marketing Impact Consumer Knowledge, Skills, and Behavior?— Workshop in Brief

On September 3–4, 2015, the Institute of Medicine (IOM) Food and Nutrition Board convened a workshop in Washington, DC, to discuss how communications and marketing impact consumer knowledge, skills, and behavior around food, nutrition, and healthy eating. The workshop goals developed by the planning committee were to: (1) describe the current state of the science concerning the role that consumer education, health communications and marketing, commercial brand marketing, health literacy, and other forms of communication play in affecting consumer knowledge, skills, and behavior with respect to food safety, nutrition, and other health matters; (2) explore how scientific information is communicated, including the credibility of the source and of the communicator, the clarity and usability of information, misconceptions/misinformation, and the role of policy; and (3) explore the current state of the science concerning how food literacy can be strengthened through communications tools and strategies.

This Workshop in Brief highlights key points made by individual speakers during the workshop presentations and discussion, organized by session.¹ The workshop was organized into three sessions, with each session designed to address one of the above goals (e.g., Session 1 was designed to address Goal 1). The information and suggestions for future action summarized here reflect the knowledge and opinions of individual workshop participants and should not be construed as consensus.

FOOD LITERACY AND THE ROLE OF COMMUNICATIONS RELATING TO FOOD SAFETY, NUTRITION, AND OTHER HEALTH MATTERS

“No one sits down to eat a plate of nutrients.” —Sonya Grier²

Food is so much more than a plate of nutrients. It is love, it is nurturance, it is comfort, it is a gift. “When it’s done right, food is well-being,” said Sonya Grier (American University) in her opening presentation in the first session of the workshop, moderated by Sarah Roller (Kelley Drye & Warren, LLP). Grier set the conceptual stage for the remainder of the workshop by arguing the case for considering food literacy³ within the broader context of food well-being. Decision making around food is complex. So many different factors drive people’s choices—not just knowledge about nutrition but also how one has been socialized around food (e.g., whether someone grew up eating dinner at the table or going out for fast food), how food is marketed (i.e., marketing influences attitudes and behaviors), whether and which foods

¹ A comprehensive summary of the workshop will be publicly available in a forthcoming publication.

² Sonya Grier attributed this quote to Shiriki Kumanyika, Ph.D., M.P.H.

³ Grier defined food literacy as “understanding nutrition information and acting on that knowledge in ways consistent with promoting nutrition goals and food well-being.”

are available (e.g., the proximity of grocery stores), and policies around food (e.g., how many fast food restaurants are allowed in one's neighborhood). In Grier's opinion, gaining a better understanding of how people behave around food will require examining all of these many factors and how they interact. The notion of food well-being resonated with many other speakers.

Building on Grier's talk and drawing on lessons learned from the field of health literacy, Cynthia Baur (Centers for Disease Control and Prevention) explained that food literacy is not just about verbal skills, or even numeracy, but other skills related to what people actually do with the knowledge being communicated. Baur described how decisions around food are not always made rationally or logically; rather, they happen "unconsciously in a very emotional way." A goal of food literacy is to bridge the gap between what experts know and want to communicate versus what consumers know and want, but Baur emphasized that effective communication does not happen by pushing messages on to people. It only happens when the receivers understand and make meaning of those messages. In her opinion, closing the communication gap requires starting with the end user, or consumer; thinking about the consumer's perspective, experience, and needs; and finding solutions that help the consumer, rather than solutions that serve the communicators' organizational or other needs.

FOOD LITERACY AND COMMUNICATIONS CONVEYING SCIENTIFIC INFORMATION CONCERNING FOOD SAFETY, NUTRITION, OR OTHER HEALTH MATTERS: OPPORTUNITIES AND CHALLENGES

"We all have these mental models in our heads. Often they are an inch deep and a mile wide. We construct them based on whatever information we have in order to have some coherent way of managing the world ... whether that information comes from Gwyneth [Paltrow] or comes from a scientist or it comes from an advertisement." —William Hallman

"Consumers are faced with tens of thousands of food-related communications every year. They are literally swimming in a sea of messages." —Carol Byrd-Bredbenner

The second session of the workshop, moderated by Fergus Clydesdale (University of Massachusetts Amherst) and Sylvia Rowe (SR Strategy, LLC) opened with Timothy Caulfield's (University of Alberta) exploration of how popular culture, celebrities in particular, influence consumer decisions around food and nutrition. What Caulfield described as "pop culture nutrition noise" has created a huge gap, or mismatch, between science and many behaviors that people adopt around food. For example, an estimated 4.3 million Canadians have gone gluten free, which Caulfield opined was a "remarkable" number "given what the science says." He observed that although celebrities often promote ideas that may have some emerging science around them, they often cherry-pick the data and run with it until the idea builds and social media picks it up. Many decisions being made around food are as much or more about identity as they are about nutrition, according to Caulfield—people want to be identified a certain way, and celebrities help to create those identities. He expressed hope that knowledge about how celebrities influence decisions can help to inform strategies to influence healthier choices.

"Many Americans lack the foundation in basic science to put new scientific information into any kind of context," William Hallman (Rutgers University) stated while describing the current state of scientific education in the United States. Most nonscientists rely on words or pictures to tell stories. Yet most scientists communicate using numbers, with scientists from different disciplines using different types of numbers. He echoed Grier's and Baur's earlier calls to start with the end user, or consumer, and encouraged the workshop participants to remember the mantra, "mental models matter." That is, we each construct in our minds mental models to have some coherent way of managing the world. Hallman explained that whether the information used to construct these models comes from celebrities, science, the Internet, or elsewhere, we each have them, and communicators need to consider these mental models when thinking about how to translate scientific information into popular thought.

Underlying everything discussed thus far, in the opinion of Sally Squires (Powell Tate), was the issue of trust. Twenty years ago, television and newspaper reporters earned a mix of trust and distrust with regard to communicating risk information related to food.⁴ Today they are among the least-trusted authorities, with the most-trusted profession-

⁴Frewer, Lynn J., et al. 1996. What determines trust in information about food-related risks? Underlying psychological constructs. *Risk Analysis* 16(4): 473-486.

als being nurses, followed by doctors.⁵ This declining trust, in her opinion, reflects a change in the media landscape. Media has changed more in the past 10 years than at any other time in history, she said. Not only is digital media growing, but social media is growing as well, with people paying more attention to what their friends are saying about certain things. Squires's take-home message was that having expertise does nothing for communication unless that expertise is accompanied by characteristics known to be associated with trust. Trusted sources are those that are concerned with public welfare, provide understandable and relatable information, and admit to uncertainties.

The growth of digital and social media has contributed to what Carol Byrd-Bredbenner (Rutgers University) described as a "sea of messages" that consumers are swimming in. Yet, even with all these messages and despite the fact that consumers are actively looking for information, people have reported that it is easier to do their taxes than figure out how to eat healthfully. What Byrd-Bredbenner termed "communication friction" is getting in the way of effective communication around food and nutrition. Communication friction comes from what she described as "flabby" writing style, that is, writing that is difficult to read and that uses unfriendly vocabulary. Inconsistency also creates communication friction, whether it is the terminology, the formatting, or the information itself that is inconsistent. Even simplicity can be problematic when it relies on definitive language, which creates skepticism. Byrd-Bredbenner listed several additional sources of communication friction and ways to remove that friction.

The sea of messages swarming consumers is not just being delivered through the digital and social media, but from food products themselves. Craig Andrews (Marquette University) described the very difficult communications environment consumers face while shopping, with the multitude of nutrition-related claims and symbols on food packages. Whether nutrition disclosures actually work depends on many factors, Andrews explained, including whether the message being sent is the right message for that audience and what the goal of disclosure is (e.g., exposure or comprehension?). Disclosures fail when messages are not personally relevant, when consumers are already familiar with their brand, and when consumers become desensitized (e.g., after repeated false alarms or when messages are more extreme than necessary). Andrews emphasized the importance of pre-testing messages.

Scot Burton (University of Arkansas) reiterated that consumers are exposed to a broad array of nutrition claims, icons, and information on a daily basis, resulting in ambiguous and unintended effects. Although nutrition disclosures can have positive effects, Burton expounded on Andrews's observation that a variety of individual and contextual factors impact overall effectiveness. He described research on the effectiveness of front-of-package disclosures showing that effectiveness depends on the processing task for which consumers are using the information (e.g., evaluating a single brand versus comparing different brands). Additionally, he described a study on calorie labeling at restaurant chains showing that the nature of the effect of calorie labeling varies among different segments of the population and in different contexts.

"We are entering a new era of mass personalized communications," Jeff Chester (Center for Digital Democracy) began. "[Companies] are able to track you and target you anywhere, anytime." Chester described how food and beverage companies are partnering with digital media companies, collecting and using "big data," and redefining shopper marketing. While collecting data, these companies are also delving into the "shopper journey" and are using this knowledge to not just sell products but entire environments. For example, a new generation of YouTube celebrities is being used to combine products with entertainment and to create experiences designed to trigger brand loyalty among young kids. He called for a greater understanding of how this new era of marketing is changing the relationship between consumers and scientific and accurate product information.

Vivica Kraak (Virginia Tech) reiterated what several speakers had said previously about the very crowded food messaging environment. Added to the crowdedness, she noted, as Chester had, is that many companies marketing to children have yet to align their mascots or licensed media characters with healthy criteria. Likewise, few companies have pledged to align their celebrity endorsements with healthy criteria. Today's food messaging environment calls for comprehensive, consistent, smart policies. These are not necessarily new policies, Kraak said, but revisions to existing policies. Products that are unhealthy need to be disincentivized and healthy products incentivized. She emphasized that both private and public policies play important roles; that policy change is an iterative, not linear, process; and that the decision-making processes of policy makers are very different than those of scientists, with policy makers valuing nonscientific as well as scientific information. She encouraged scientists to be more aware of the cultural differences between science and policy, to ask more policy-relevant questions in their research, and to more effectively communicate their findings to diverse audiences.

⁵ 2014 Gallup Poll on Honesty and Ethics. Available online at <http://www.gallup.com/poll/180260/americans-rate-nurses-highest-honesty-ethical-standards.aspx> (accessed October 30, 2015).

In his closing presentation, “Role of Policy: Why Do We Base Policy on How We Feel and Not on Science?,” Joseph Levitt (Hogan Lovells) described three case studies illustrating the gap between science and public perception, one being Alar in apples in the late 1980s. At the time, the biggest food safety concern was cancer. Although the U.S. Environmental Protection Agency had determined that Alar in apples posed no significant cancer risk, *60 Minutes* did an exposé on the carcinogenicity of Alar in apples and Meryl Streep made a series of public appearances, according to Levitt. The U.S. Food and Drug Administration would later determine that the real issue underlying the Alar scare was not the science, but rather that Alar was intentionally added, that it was hidden, that it was being fed to vulnerable populations (i.e., kids), and that the purported risk (i.e., cancer) was considered a serious risk. The lesson learned, Levitt said, was that “science by itself cannot control public perception. There are other factors that come into play.” Levitt encouraged a greater understanding of the anxieties underlying public concerns about food.

To close the first day of the workshop, David Freedman (*The Atlantic*) reflected on the information and opinions expressed thus far. He observed that the problem being addressed was how to support the public in receiving and embracing scientifically valid information about healthy eating in a way that will lead to healthier choices, healthier behaviors, and ultimately healthier living. But immediately, just in defining the problem, he said, another problem emerges: Which information? Different scientists reach different conclusions about what is causing any given problem. Even if it is decided that the most immediate problem is obesity, scientists have yet to agree on what exactly needs to be done to combat obesity. Then, pretending that they do agree on what exactly needs to be done, yet another problem immediately emerges: What actually can be done? He observed that the public gets caught up in “pop messaging” and locked into nonscientifically valid beliefs that end up short-circuiting any effort to deliver accurate information. If someone has decided that calories do not matter, for example, then what good does it do to improve at sending messages about calories? Pretend for another moment, he suggested, that experts can cross that gap and reach consumers. But again, what message should they send? He encouraged moving beyond theory and getting out into the public to figure out how to tackle the problem.

PROMOTING FOOD LITERACY: COMMUNICATION TOOLS AND STRATEGIES

“If you want to catch a fish, first learn to think like a fish.” —R. Craig Lefebvre

“The journey is not to some place [consumers] have not been. The journey is to get them to where they already are.” —Tom Nagle

Moderated by Wendy Johnson-Askew (Nestlé Nutrition), the Session 3 speakers considered a range of communication tools and strategies for supporting the public in receiving and embracing scientifically valid information about healthy eating in a way that leads not only to healthier decisions but healthier behaviors.

To begin the session, Rebecca Ratner (University of Maryland) explored the effectiveness of guidelines for everyday actions, the *Dietary Guidelines for Americans* (DGA) being a prime example. Effective guidelines have two key characteristics, Ratner explained. First, they are memorable, not just immediately after having been exposed, but months later. Second, they are actionable. That is, they are understandable. People know what to do and when to do it. She compared the memorability and actionability of the original DGA Food Guide Pyramid, the revised MyPyramid, and the more recent MyPlate; discussed the research that led to MyPlate; and identified the key underlying features, such as simplicity, that make a guideline memorable and actionable. Additionally, Ratner stressed the importance of testing messages on target audiences.

R. Craig Lefebvre (RTI International) emphasized the need for researchers to think about population-level interventions, not just individual behavior interventions, and argued that diffusion theory is a helpful conceptual framework for doing so. The diffusion of innovation model segments the population into innovators, early adopters, the early majority, and laggards, with each segment having different characteristics and motivations. In Lefebvre’s opinion, not until researchers think about the different ways people acquire new behaviors will they be successful at population-level changes with respect to food literacy. He encouraged researchers to go into the field and, rather than confirming a priori hypotheses, tapping into people’s shared “mental models.” “If you want to learn how a lion hunts,” he said, “you have to go the jungle, not to the zoo.” Additionally, he emphasized focusing not on the middle of a distribution, which is what researchers typically do, rather on the tail ends, that is, on the people who are behaving the way you would like them to behave. Focusing on the middle helps to describe a problem, but it does not help to understand

how to change behavior. In sum, Lefebvre said, the question “How can we make practice more science-based?” needs to be turned around. The real question is, “How can we make science more practice-based?”

In her presentation on social norms, Jennifer Bauerle (University of Virginia) echoed Lefebvre’s and other speakers’ calls to start with the end user, or consumer, or, as she put it, meet the audience where they are and say, “Come along with us.” The goal of a social norms approach to changing behavior, Bauerle explained, is to shrink the gap between what people are doing and what they think their peers are doing by finding the social norm, holding it up as a mirror, and giving people the space to respond. People learn social norms, such as how to behave when entering an elevator, by watching and listening to what other people are doing. She described the strategy as a positive, inclusive, and empowering approach. In the panel discussion at the end of the session, when asked by moderator Johnson-Askew how a social norms approach could be used to address obesity, given that obesity is becoming the norm, Bauerle replied that in cases where the majority of the population is not doing something that you want them to be doing, start instead by holding the attitudinal norm up as a mirror (i.e., most people have healthy attitudes) and using that to bump against the social norm to get it moving.

Tom Nagle (Statler Nagle LLC) began his presentation by lamenting the very concept of food literacy because it is premised on what he said was a “wrong-headed” notion that a well-informed citizen will do the right thing. Elaborating on the complexity of decision making around food that Grier and other speakers had addressed, Nagle observed that people make decisions based on emotions and values, not rationality and information. He used his company’s “Cans Get You Cooking” marketing campaign as a case study to illustrate how effective messaging does not change people’s values, rather it puts the desired behavior change in the context of values the consumer already has. Additionally, he emphasized that effective messaging is not just about the message. It requires what he called a “full marketing architecture.”

In the final presentation of the workshop, Linda Neuhauser (University of California, Berkeley) promoted participatory design as a way to close the gap between the experts who are sending science-based messages about food and nutrition and the consumers who are living complicated lives. As so many other speakers had similarly expressed, she cautioned that communicators are not going to get far if they do not engage the users and figure out what the users are feeling. Participatory design does that. Unlike traditional research, which typically involves defining a single problem and then generating and testing a single solution to that problem, participatory design is a user-centered, iterative process involving the constant and simultaneous defining of problems and generating and testing of ideas. Also unlike traditional research, participatory design involves not the study of what is, but the study of being in the future: how to think about the future, how to create that future, and how to evaluate that future. Using the “A Cafeteria for Me” project in San Francisco to illustrate effective participatory design, Neuhauser emphasized the importance of thinking big, generating ideas “fearlessly,” and prototyping and testing.

FOOD LITERACY: LOOKING FORWARD

“I think every single presentation has focused on the fact that you have to start where people are with the lived reality of their lives and then build whatever it is you want to do from there.” —Cynthia Baur

The workshop ended with a final panel discussion among the speakers from all of the sessions. Panelists considered a range of topics from the challenge of addressing taboo issues, like obesity, to opportunities for designing communication environments as opposed to sending single messages. A lively discussion was triggered by co-moderator Roller’s hypothetical case involving two consumers⁶ and her question about which of the two consumers qualified as food literate. She asked, “What does a food literate consumer look like, and how do we make that determination?” Several speakers agreed that asking whether people are food literate without considering those people’s goals is not the right question to be asking. For Baur, the question illuminated what she thought was a significant take-home message from the workshop, as conveyed in the above quote.

⁶ “Consumer A” was a physician who did not like or eat vegetables but who knew the DGA by heart and was able to communicate about nutrition to her patients. “Consumer B” was an 8-year-old boy who consumed his daily recommended amount of fruits and vegetables by eating mandarin orange slices and baby carrots, not because he knew about nutrition, but because his grandmother had told him that he needed to eat those foods to retain his eyesight.

Food Forum

Sylvia Rowe (Chair)
SR Strategy, LLC

Nelson Almeida
Kellogg Company

Mark Andon
ConAgra Foods

David J. Baer
Agricultural Research Service
U.S. Department of Agriculture

Francis (Frank) Busta
University of Minnesota

Paul M. Coates
Office of Dietary Supplements
National Institutes of Health

David B. Cockram
Abbott

David Goldman
Food Safety and Inspection Service
U.S. Department of Agriculture

Daniel A. Goldstein
Monsanto

Danielle Greenberg
PepsiCo

Sonya A. Grier
American University

Brenda Halbrook
Food and Nutrition Service
U.S. Department of Agriculture

Kate J. Houston
Cargill Inc.

Lee-Ann Jaykus
North Carolina State University

Gordon L. Jensen
Pennsylvania State University

Helen H. Jensen
Iowa State University

Renée S. Johnson
Congressional Research Service
Library of Congress

Wendy L. Johnson-Askew
Nestlé Nutrition

Christina Khoo
Ocean Spray Cranberries, Inc.

Susan Taylor Mayne
Center for Food Safety and Applied
Nutrition
U.S. Food and Drug Administration

S. Suzanne Nielsen
Purdue University

Erik D. Olson
Natural Resources Defense Council

Richard Olson
Office of Disease Prevention and Health
Promotion
Department of Health and Human
Services

Lucy Reid
The Coca-Cola Company

Claudia Riedt
Dr Pepper Snapple Group

Steven W. Rizk
Mars, Inc.

Sarah Roller
Kelley Drye & Warren LLP

Sharon A. Ross
National Cancer Institute
National Institutes of Health

Kari Hecker Ryan
Kraft Foods

Pamela Starke-Reed
Agricultural Research Service
U.S. Department of Agriculture

Stephen P. James
National Institute of Diabetes and
Digestive and Kidney Diseases
National Institutes of Health

Angela M. Tagtow
Center for Nutrition Policy and
Promotion
United States Department of Agriculture

Maha Tahiri
General Mills, Inc.

Patricia Williamson
Tate & Lyle

IOM Staff

Heather Cook
Food Forum Co-Study Director

Leslie Sim
Food Forum Co-Study Director

Anna Bury
Research Assistant

Gerri Kennedo
Administrative Assistant

Ann Yaktine
Director, Food and Nutrition Board

The importance of starting with the “lived reality” of people’s lives resurfaced later during the discussion when co-moderator Kristen Harrison (University of Michigan) described the very busy lives of people and asked the panelists how communicators can tell science-based truths about food such that the messages they send are interpreted as “gifts,” not “chores.” Again, several panelists highlighted the importance of focusing on consumer goals and needs. Byrd-Bredbenner described an obesity prevention program with young adults where she and her colleagues intended to discuss nutrition until they learned that stress, not nutrition, was the biggest problem facing these young adults. So they had to change their messaging. She said, “I think we have to keep what is really important to the person in mind and then go from there.”♦♦♦

DISCLAIMER: This Workshop in Brief has been prepared by **Leslie Pray** as a factual summary of what occurred at the meeting. The statements made are those of the authors or individual meeting participants and do not necessarily represent the views of all meeting participants, the planning committee, or the National Academies of Sciences, Engineering, and Medicine.

REVIEWERS: To ensure that it meets institutional standards for quality and objectivity, this workshop in brief was reviewed by **Fergus M. Clydesdale**, University of Massachusetts Amherst, and **Wendy L. Johnson-Askew**, Nestlé Nutrition. **Chelsea A. Frakes** served as the review coordinator.

SPONSORS: This workshop was supported by National Institutes of Health, U.S. Department of Agriculture, and U.S. Food and Drug Administration with additional support from Abbott Laboratories, Incorporated; Cargill, Inc.; The Coca-Cola Company; ConAgra Foods; Dr Pepper Snapple Group; General Mills, Inc.; Kellogg Company; Kraft Foods; Mars, Inc.; Monsanto; Nestlé Nutrition; Ocean Spray Cranberries, Inc.; PepsiCo; and Tate & Lyle.

For additional information regarding the meeting, visit <http://iom.nationalacademies.org/FoodForum>.

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people’s lives worldwide.

www.national-academies.org

iom.nationalacademies.org

*Copyright 2015 by the National Academy of Sciences.
All rights reserved*