
Digital Marketing

**Peeking Behind the Curtain:
Food and Marketing Industry Research
Supporting Digital Media Marketing
to Children and Adolescents**

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Find the database of industry research documents discussed in this report online at digitalads.org

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Introduction

Children and teens in the U.S. must navigate an environment saturated with junk food marketing. Everywhere children and youth go, marketing follows them, touting foods and drink that they would be much better off avoiding. The landmark 2005 report, *Food Marketing to Children and Youth: Threat or Opportunity?*, for example, found that most food and beverage marketing targeting young people promotes products that are high in sugars, fats, and salt, and low in nutrients, and that marketing influences children's preferences, purchase requests, and ultimately what they consume.¹ Food marketers are doing everything they can to see that these trends continue as the media landscape changes, reaching ever more directly and intimately into children's lives.

In the last five years, the digital media marketplace has grown dramatically, becoming an even stronger presence in the lives of young people.² Marketing techniques and technologies have shifted accordingly, with an emphasis on a variety of new techniques. These include, for example, behavioral and location-based targeting methods that allow marketers to pinpoint their pitches, even sending personally designed promotional messages to individual consumers in real time. Critical areas of this program include "neuromarketing," or the use of such brain research techniques as functional magnetic resonance imaging (fMRI) to probe deeply into consumers' reactions to marketing; social media advances that tap consumers' networks of family and friends; and mobile services that allow marketers to bypass parents and guardians and reach children directly in real time at specific locations.

Early concerns about the effects of food marketing barely touched on this rapidly changing digital marketing environment. To understand the scope and potential effects of food marketing targeting children and youth, public health advocates must understand the contours and dimensions of the global research infrastructure for digital marketing—especially the work focused on youth regarding food and beverages. Regrettably, scholarly research, much of it still rooted in broadcast technologies and traditional media like TV, has lagged behind developments in the field of online marketing.

To bring the public health community up to date on this front, we analyzed market studies and industry literature, and examined various digital food and beverage marketing campaigns themselves. In particular, we sought to illuminate (1) what are the latest developments in industry research on interactive marketing, (2) how have these advances affected the ways in which food and beverage marketing is done, and (3) what does this portend for the health of young people?

The Center for Digital Democracy and Berkeley Media Studies Group have closely followed how food and beverage companies and their network of partners are using research. Food marketers have invested in these efforts to ensure that their brands, many of which are low-density and high-fat products, are targeted to youth and take advantage of new media platforms such as social media, mobile phones, and online games. New commercially supported digital channels, including the Web, mobile, and gaming services, have already attracted huge numbers of children and adolescents.³ Other major platforms used

for delivering food ads, such as TV, are being transformed as they incorporate many of the same interactive capabilities now found online.⁴ Precisely at a time when youth obesity is rising, powerful digital media marketing applications are undermining efforts to arrest the problem.

In order to advise policymakers, researchers, health advocates, and the public, we need to have as thorough an understanding as possible of the dimensions this research and of the findings it has generated. We also need to understand what the research tells us about how the health of young people may be affected, and what the goals in both the short and longer terms are for the food and beverage industries. To answer these questions, we collected and assessed publicly available research and literature from the food and beverage industry, and from the firms these companies hire to undertake specialized research.

Methods

Since 2006, we have closely tracked these research efforts in both the U.S. and abroad. Digital marketing is a global business; many brands whose products in the U.S. have raised concerns about obesity got their start in other markets around the world. For this report, we collected and assessed a range of publicly available work:

- in-house marketing research, including case studies carried out by leading companies throughout the world, such as Coca-Cola and Pepsi;
- digital marketing research conducted by major online ad companies, such as Google, Yahoo, and Microsoft;
- research and case studies conducted by and presented to the national and international associations addressing digital media, including ESOMAR, I-Com, Interactive Advertising Bureau, and Advertising Research Foundation;
- the work of digital ad agencies, including those that focus on multicultural markets;
- presentations and reports from major computer industry scholarly conferences, such as the Association of Computing Machinery (ACM) Knowledge Discovery in Data conferences.

Our study examined reports across a variety of formats and covering a diverse range of topics, including new platforms, online surveillance technologies, new metrics, and digital campaign awards. We also examined how this research was used in the campaigns themselves. For instance, the data obtained for this project included presentations by food and beverage companies in which they identified products, services, and strategies related to their own research and marketing plans.

As we collected the research, we read each document, examining it for themes and the types of findings that were presented. Based on this initial assessment, we developed a classification scheme to organize the types of industry research. Using this system, we assessed each category to identify trends and patterns.

Findings

Emergence & Importance of New Marketing Research and Methods

Food and beverage advertisers have played a leading role conducting and supporting research in digital marketing. Major brands have commissioned their own research, collaborated with leading ad agencies and research organizations, and cooperated with an array of digital media marketing companies. They are now part of broad industry efforts to expand both the research base on and the capabilities of digital marketing.⁵

Food and beverage marketing-oriented research using emerging marketing techniques includes some of the earliest work in the digital field. One of the pioneering studies from the U.S. digital marketing industry was the collaboration of the Microsoft Network (MSN), the Interactive Advertising Bureau (IAB), the Advertising Research Foundation, Dynamic Logic, and Marketing Evolution to evaluate whether online advertising contributed to campaign outcomes. The findings from their 2002 “XMOS Case Study: McDonald’s Grilled Chicken Flatbread Sandwich” included the conclusion that “traditional media under-delivers to a segment of the consumer population who are reachable primarily through Online Advertising.” The research also demonstrated that “online advertising promoted an increase in product awareness and image association.”⁶ McDonald’s participated in this early study in order to better exploit the emerging digital marketplace.

The evolution of McDonald’s digital marketing is further illustrated in its deployment of mobile marketing techniques for location-based targeting. For a 2009 Snack Wrap Mac Campaign, the company documented its use of mobile coupons (with a sports tie-in) that resulted in a favorable response rate.⁷ For leading companies such as Coca-Cola and Pepsi, we found multiple research studies conducted over the last several years as they developed and fine-tuned their digital marketing efforts.⁸

Overall we found that the food and beverage industry, together with the companies they contract, are conducting three major types of research. First, they are testing and deploying new marketing platforms, especially social and mobile media techniques, to reach consumers. Second, they are creating new research methods to probe consumers’ responses to marketing, such as neuromarketing research to analyze users’ deep cognitive and emotional reactions to advertising. And third, they are developing new means to assess the impact of new digital research on marketers’ profits through analysis of sales, branding, and by developing new measurement metrics. We also found substantial literature on how the industry puts this research program into action, specifically through its efforts to target two groups—communities of color and youth (see the table for examples of research from each category). Next, we explain how research is being used to inform food and beverage marketing.

Types of Marketing Research Utilized by the Food and Beverage Industry

Category of Research	Examples
Developing New Marketing Platforms	<ul style="list-style-type: none"> • Twitter: Sprite’s Moms campaign⁹ • Augmented: Cheezdoodles.com Case Study/Wise¹⁰ • User-generated: “Design Lessons from User Generated Content: An Analysis of User Generated Internet Video and Flash Animations”¹¹ • Influencers: Subway “Fresh Buzz”¹² • Apps: Supervalu Drives in-Store Grocery Sales¹³
Probing Consumers’ Response to Advertising	<ul style="list-style-type: none"> • Neuromarketing: Quantemo¹⁴ • Behavioral targeting: Coca-Cola customer loyalty¹⁵ • Global: Microsoft Advertising Solutions¹⁶ • NeuroStandards Collaboration, Advertising Research Foundation (Hershey’s, Campbells)¹⁷ • “Dwell on Branding.” Microsoft Advertising (clients include PepsiCo)¹⁸ • Computational Advertising, Yahoo Research, Bangalore (various food clients)¹⁹ • Communispace/private online communities (Frucor, others)²⁰
Improving the Bottom Line	<ul style="list-style-type: none"> • McDonald’s Grilled Flatbread²¹ • MyCokeRewards.com²² • Yahoo²³ • Cadbury²⁴ • Coca-Cola²⁵ • Kellogg’s: Global Social Listening Strategy²⁶
Research in Action: Targeting Communities of Color	<ul style="list-style-type: none"> • Moms: Living La Vida Rapida²⁷ • Multicultural: Best Mobile Branding: Fanta, Millennial Media²⁸
Research in Action: Tracking Youths’ Media & Consumption Behaviors	<ul style="list-style-type: none"> • Dorito’s²⁹ • AOL³⁰ • “New Insight on Kids, Tweens and Teens” and “Mischievous Fun with Cheetos®”³¹ • Advertising Research Foundation (various food marketers)³² • Youth State of the Nation, Microsoft Advertising (McDonald’s, others)³³ • FACE/Coca-Cola, “Project Hijack: Step Changing our Dialogue with Youth.”³⁴

Developing New Marketing Platforms

Food and beverage companies are regularly in the forefront of exploring the potential of new platforms to deliver branding and sales opportunities. We found eight major new marketing platforms recently deployed or still being developed by industry:

- social media like Facebook and Twitter, including the branded applications created within those services;
- digital games, which seamlessly integrate brands into “advergames”;
- content delivered on mobile devices;
- location-based marketing, which allows marketers to identify and reach individual users in geographical space in real-time;
- efforts to activate digital influencers, or key members of social networks who spread marketing messages via digital word-of-mouth campaigns;
- user-generated content, in which brands elicit consumers to actively produce marketing content;
- augmented reality campaigns, in which pictures of the user are melded into animated content online; and
- evolved versions of traditional media, such as interactive marketing delivered on television.

New platforms research explores, develops, and tests new means by which to market food and beverages, often to children. Burger King was an early sponsor of interactive television (ITV) ads, for instance, collaborating with Verizon’s FIOS service to examine cross-platform impact on engagement and sales.³⁵ This revolutionizes the traditional 30-second TV spot because ITV permits two-way conversations between marketers and viewers, as well as “telescoping” ads that offer additional details on particular products and services.

Among the research on new marketing platforms, Facebook itself has conducted research to illustrate how food and beverage brands have found success on its social media-marketing platform. Such research reflects the development and testing of various new ways to measure a social media campaign’s impact, such as metrics measuring “viral” activity. Mars and its brands, including M&M’s, Snickers, and Milky Way, used Facebook to offer free samples of their products. According to Facebook’s research, the social media site quickly delivered 1.2 million of its users who connected to the M& M page on the site.³⁶

Additionally, the mobile and location marketing company Navteq has documented success for McDonald’s, Domino’s, and others who are pioneering the use of digital tactics to transform mobile devices into a service that effectively delivers consumers to a nearby store.³⁷ Companies reach users on their mobile devices with ads targeted to a specific user in a particular location, and achieve an in-store sales opportunity by issuing digital coupons that can be redeemed at nearby stores.

Industry researchers are also tracking the impact of “virtual products” connected to real brands. This is important because it illustrates the growing number of methods used to promote food products using techniques that likely have an impact on a young person’s cognitive and emotional development. The ability of digital gaming to integrate real brands in the story, imagery, and design, for example, such as the Coca-Cola Kiosks that delivered “100,000 to 300,000 virtual purchases a day,” seamlessly integrates the brand into young people’s lives. Virtual characters, such as “Hello Kitty,” were successfully used by McDonald’s Hong Kong division to integrate the brand into the contact lists of users who

exchanged millions of instant messages.³⁸ The McDonald's effort combined the expertise of digital marketing research capabilities of leading digital technology and advertising companies. Microsoft Research, for example, plays a critically important role in advancing the capabilities of the Microsoft Advertising division. OMD, an international ad agency with over 140 offices in more than 80 countries and a key partner in the Hello Kitty campaign, has established its own digital marketing research lab.

Probing Consumers' Response to Advertising

A second major category of industry research includes a set of investigations that probe consumers' emotional and cognitive reactions to advertising. Food and beverage companies are using sophisticated research to transform marketing, including neuromarketing related to brain research and new forms of social media persuasion. These span a broad array of research methods, but share a focus on realizing how deeper insights into the human psyche can be mined for future marketing efforts. We found five types of research on audiences' responses to advertising:

- neuromarketing, which uses brain-scanning methods to analyze consumers' reactions to advertising;
- biometric analysis, which examines consumers' bodily and biological responses;
- location-based measurement, which uses data from mobile devices to allow research on consumers' whereabouts in real-time;
- behavioral profiling, or advances in the capacity of research to identify individual consumers and craft messages for them;
- computational advertising, which Yahoo describes as "a new scientific sub-discipline, at the intersection of information retrieval, machine learning, optimization, and microeconomics."³⁹

While varied in their approach and application, these techniques are all inter-connected in their contribution to the increased sophistication and effectiveness of interactive advertising. And for those concerned with the impact of such marketing on the public health in general and on children and youth in particular, understanding the subtle distinctions in these several approaches, and their collective impact on the evolution of advertising, is essential.

The industry uses neuromarketing, which draws on brain research to craft messages that bypass our rational, conscious decision-making process, to promote food and beverage products, such as the award-winning effort by Cheetos for "Orange Underground."⁴⁰ That campaign involved neuromarketing by using a variety of research companies, especially Neurofocus, to analyze how to maintain Cheeto's market share with young people, and to build a new audience of adults who positively identified themselves as having child-like behaviors.

An array of research initiatives at the corporate, trade association, and academic levels is underway to evaluate and refine the use of biometric measures to assess neural processing for product and brand promotion. Market researchers subject participants to branded stimuli and record a variety of

bodily responses, such as heart rate, respiration, perspiration, and eye movements. This represents a move past such traditional forms of research as focus groups and surveys because the data not only help marketers narrow their focus and reach customers in real time, but the results also feed into constant improvements in marketing content.

New location-based measurement techniques made possible by mobile devices, and linked to product promotion and sales, have emerged as an integral part of the “path-to-purchase” consumer decision cycle, which is a major focus of marketing research. Digital marketing research has increasingly focused on the role of mobile and location-based marketing to help influence the purchasing decisions of consumers at all stages of the shopping process—both to stimulate and to maintain interest in a brand.

Advanced work is also being conducted to expand the ability of marketers to collect and analyze data for behavioral profiling. The landscape of marketing is being dramatically changed through the rapid rise of so-called “real-time bidding” digital ad platforms, where the right to target an individual (usually 13 or older) is bought and sold in milliseconds. A new generation of interactive marketing specialists plays a role in this new system, which combines a wide range of data on a consumer, whether they are surfing the Internet, watching an online video, or using their mobile phone. Information collected from social media, such as profile data, is also used for such real-time targeting.⁴¹ There has been a dramatic growth in social media marketing data techniques, where brands (including food and beverage companies) can identify key online users and sites that favor their products.

Improving the Bottom Line: How Research Affects Sales

Naturally, researchers are interested in documenting how digital marketing delivers in-store sales. The industry spends substantial effort researching the effectiveness of its marketing, developing new metrics used to measure campaigns, and using these data to improve promotional strategies in near real-time. The research demonstrates that digital marketing techniques have a powerful impact on the decision-making of consumers. We found two major types of research in this category: works that developed new metrics by which marketing is measured, and studies that examined the efficacy of marketing. The latter were not exclusively on sales, but also included intermediate measures of success, such as how well a brand was perceived, or how long consumers “dwelled” on or spent time with the brand during an engagement.

An innovative form of new marketing research methods the food industry uses is analytics, which involve “the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web usage.”⁴² For example, in February 2011, Kellogg’s presented its social media strategy at a BlogWell conference, demonstrating that it was familiar with many of the leading social media analytic tools, including Radian6 (“a complete platform to listen, measure and engage with your customers across the entire social web”), Cymfony (“provides market influence analytics by scanning and interpreting the millions of voices at the intersection of social and traditional media”), and Alterian SM2

(“empowers businesses with social intelligence to successfully engage with their target audience”).⁴³ Such information reveals both the range of techniques being deployed, as well as how knowledgeable these companies are about current digital marketing developments.

There is a steady stream of in-depth reports, written by agencies and other online-focused companies, that analyze recent developments in digital media marketing and research. Another trend is research designed to quantify the value of new approaches to marketing, including social media. For example, there are multiple efforts underway to determine the worth of and methods of measuring a “Facebook impression,” an example of a new metric tied to spending on a brand or product.⁴⁴

Work assessed for this report included industry-wide studies documenting the positive impact digital marketing has on branding, and the increasing ability of market researchers to assess their campaigns across the “360-degree” experience of users (i.e., across a range of online, broadcast, print, events, and other offline media). Reports from leading digital marketing companies that analyzed the impact of new forms of digital targeting, such as a series produced by digital marketer Razorfish, are examples of the steady focus on encouraging marketers to take advantage of the latest tactics.⁴⁵

In addition, the food industry often taps allies in the technology sector to develop research on how well new digital campaigns are affecting the bottom line. Companies such as Google, Microsoft, and Yahoo have either created or supported research for food and beverage companies that measure such sales. For example, one report focused on Cadbury’s sales through the use of YouTube, claiming that for every 1 British pound spent on digital ads, 3 British pounds of spending by consumers were generated.⁴⁶ Google also engaged in research involving Coca-Cola to assess how online video and search engine marketing compared to television ads in terms of sales impact (they do so favorably).⁴⁷

Similar research has been used to test specific forms of digital marketing applications, including rich media, a digital marketing technique that uses a variety of interactive formats, including video, to foster immersive experiences for users. Such approaches are now being used to help design online coupons. Companies such as Coca-Cola and Pepsi have seen significant “lift” in store sales through rich media-enabled digital coupons.⁴⁸ Other research demonstrates the positive impact on brand sales from the posting of images and videos on Facebook and similar social media. Rich media research also focused on the development of new metrics to measure its impact, such as the emerging concept of Dwell, which measures time users spend with the interactive components of an ad.⁴⁹ This type of prospective work provides insights into how food and beverage campaigns will be constructed, as they take advantage of what emergent techniques are shown to be effective.

Case studies submitted for digital advertising awards provide first-hand documentation by both companies and advertisers of the efficacy of many food and beverage efforts. Such case studies reveal the “insider” discussions about what both the brand and the advertising agency think about the product’s success in the marketplace. These case studies are marketing tools by which the companies tout their

ability to attract audiences and sell products, providing a window into the power of the new methods for marketing food and beverages to children and youth.

For example, Frito-Lay's "SnackStrong Productions," in its submission to the Effie awards in 2007, documented the use of multiple forms of digital marketing to attract its youth target. The campaign reversed a decline in sales, with 7 million bags of the "mystery" X-13D Doritos chip sold during one phase of the effort—without ever showing a picture of the product or of any food. Similar research for SnackStrong-related efforts reveals multiple studies documenting the impact of various digital marketing efforts.⁵⁰ The Effie submission illustrates a still-early example of how food and beverage companies have experimented with digital marketing techniques, documenting their impact on sales and other brand-specific goals.

A final source of research focused on the evaluation of specific techniques when combined with various platforms, such as the role of engagement in video ads online. Doritos, for example, was reported to have seen a variety of positive measures (purchase consideration, likelihood to recommend, brand recall) through marketing campaigns involving interactive video formats.⁵¹ Food and beverage companies have evaluated their use of online games, including sponsorship and in-game ads. Doritos, in particular, developed a longstanding relationship with Microsoft's Xbox, documenting the duration of brand-related interactions and the number of downloads conducted by users.⁵²

Research In Action: Targeting Communities of Color

Digital marketers are exploring new avenues for reaching target audiences. There is a body of research aimed at ensuring that key groups such as mothers, including those from communities of color, receive branded digital marketing designed to promote sales of food and beverage products. Results from such research show a growing reliance on digital media by mothers, especially on mobile phones, for making purchasing decisions. Such research is designed to help food marketers shape their campaigns to reach the key person making shopping decisions, as well as simultaneously targeting youth as decision influencers. One other effort found in this research is the growing use of private online communities by food marketers (and others) to generate insights used to improve or plan marketing campaigns, as well as to develop strategies to help inform communications with the public.⁵³

Recent research published in academic marketing journals focused on multicultural groups, which demonstrates that there is a significant infrastructure of scholars engaged in work to improve how digital advertising works with targeted constituencies.⁵⁴ The focus on multicultural consumers and their relationship to digital marketing can be seen through a variety of initiatives led or funded by industry, such as the Advertising Research Foundation.

Research In Action: Tracking Youths' Media & Consumption Behaviors

The food and beverage industry, with the market research industry, tracks young people to understand their media usage patterns and their consumption behaviors. These advertisers seek to benefit from far-ranging research into digital media, especially concerning their impact on youth behaviors. The industry knows that the current generation of young people—the so-called “millennials”—are more connected to media than ever before, and thus seek to exploit the marketing opportunities this connectivity provides.

Marketers are closely examining how youth interact with and increasingly rely on digital media in their daily lives. Using a variety of investigative methods, digital marketers have supported research to help them understand how to target this group. Marketers have migrated their use of ethnographic research in the off-line environment to the digital arena, enabling them to assess both individual and what they have called online “tribal” behaviors of young people.⁵⁵

For youth, this industry research underscores what groups such as the Pew Internet & American Life Project and others have also reported—that young people are deeply connected to digital services and have an evolving relationship with commercial interactive media, shaped by the impact of digital marketing generally and reflecting the advances in its technological capabilities and the growing number of users that now have faster Internet connections and smart phones.⁵⁶

One area the industry focuses on is the multi-tasking and multi-platform behaviors of adolescents. Market research into the online activities of youth has recognized that they utilize a variety of media platforms, including the personal computer, gaming services, and mobile devices. Marketing campaigns are increasingly designed and measured to take such fluid use into account. AOL, for example, conducted its “Three Screen Nation” research in 2009, and found that teens were spending more time online than with television.⁵⁷ Microsoft’s youth research has found that young people frequently search for a brand online, and that older adolescents are targeted as “young adults.”⁵⁸ Research also revealed how marketers view specific groups, such as adolescents. One Advertising Research Foundation report involving Wrigley’s gum found that “teens are... experience junkies,” susceptible to an array of digital ad techniques.⁵⁹

Other research reveals the regular collection and analysis of information on young people, and how it is used for various digital marketing campaigns. Coca-Cola, for example, has been a pioneer in the use of behavioral advertising through various forms of data collection strategies, such as the use of registration data from its MyCokeRewards program. A report from the technology company Coca-Cola used to create the data collection and measurement platform describes how the company uses sophisticated database strategies.⁶⁰ Such data are being used to identify youth “influencers” so quick-service restaurants can target them via social media. In other examples, food companies and other marketers were able to gather and exploit young people’s “profile data” on Facebook to help drive teen decision-making.⁶¹ The collection of information on individual users based on both their online activities and a range of data records—so-called behavioral targeting—has contributed to the development of a variety of

data-driven social media marketing applications. As with behavioral targeting, social media marketing techniques have been developed that can simultaneously foster and measure the activation and influence of individuals, including for food and beverage marketing.

What We've Learned

Advertising and marketing innovations are playing a pivotal role in the evolution of communications media, which now extend to online video, social media, and mobile phones. The expansion of advertising throughout emerging key platforms, such as those found in online video and location-based digital ad services, is still at a relatively early stage. But it is clear, based on advances in interactive advertising's capability to target online video users individually with personalized advertising, that such marketing will be a serious force in the lives of young people.

Food and beverage companies participate in and benefit from a global research infrastructure that seeks to enhance the role and impact of marketing. Food and beverage marketers are in the forefront of supporting this research, for the industry as a whole as well as for their individual brands and products. Overall, food and beverage marketers have learned that there is a fundamental change in media use, with both young people and their parents increasingly relying on digital media. Food and beverage companies are supporting research into digital media both to ensure they will have access to data for measurement, and also so the multiple interactive platforms fully support a robust advertising and marketing system.⁶²

These marketers are in the forefront in embracing innovative forms of marketing, and they are evaluating strategies to reach multicultural youth and their families. Digital food and beverage marketers are researching the direct impact on store sales, including the role of such marketing on multiple platforms. They are among the pioneers in evaluating emerging metrics both to implement and assess social media campaigns. Research into the integration of digital techniques, including those for in-store marketing, is documenting the ability to define a "path to purchase" for consumers—leading to the consumption of products by youth that may be harmful to their health.⁶³

Food and beverage marketers are engaged in a continual effort to document the impact of new marketing approaches, such as neuromarketing, mobile/location targeting, virtual worlds/video games, and online video. These new forms are extremely efficacious; they represent an important revolution in the marketing landscape. Yet they are also an extension of traditional marketing techniques (e.g., interactive television advertising), and are based on time-honored marketing principles (e.g., understanding and exploiting consumers' aspirations). For example, companies have long tried to reach influencers such as mothers; with the advent of digital social networks, however, marketers can focus on activating key influencers within groups of mothers, multiplying their marketing payoff. What is so potent, therefore, are the ways in which new digital marketing techniques, and research methods, allow for unprecedented precision in the real-time targeting of individual consumers, prominently including young people.

Why it Matters: The Implications for Public Health

Food and beverage marketers are driving powerful new forms of high-fat, low-density food consumption that can harm young people's health. Food marketers now have more channels to use in targeting young people, including videogames, mobile phones, and personal computers. They can launch, measure, and fine-tune in real time localized and national campaigns. Digital marketing enables food and beverage companies to use marketing techniques that tightly integrate play, gaming, entertainment, rewards (both virtual and "real"), and social relationships. Today, noncommercial actors such as young people's friends and social networks are designing marketing campaigns, helping create a branding environment not directly linked to the food or beverage manufacturer, and not necessarily recognized as traditional advertising. These marketing efforts on behalf of food and beverages can generate significant sales of products, without the expenditures normally associated with major campaigns. Sales can be generated without even showing the product itself.

These campaigns are specifically designed to foster new forms of "social contagion" for products, text and video messages that are virally distributed, including by friends and those identified as "influencers." Marketers are now able to measure sales in stores and quick-service restaurants tied to digital campaigns. Food marketers are using these new approaches to orchestrate campaigns targeting individuals designed to initiate the "path to purchase," including promoting the idea to buy and then facilitating and measuring buying and post-consumption behaviors. Leading food and beverage marketers, their agencies, and digital marketing specialists are explicitly designing and implementing campaigns through neuromarketing efforts to influence emotional and subconscious brain processing. All of these developments are occurring in a still-early stage for digital marketing. Given the growing investment in digital advertising, ensuring that personalized interactive marketing is a core component of the new media landscape, what finally emerges in the next several years will have a significant public impact, especially on youth.

Moreover, research on behalf of food brands is a global effort, as the major digital marketing companies promote products to youth throughout the world. The market research infrastructure is a global phenomenon in which companies test out ideas appropriate to the local cultural context in order to maximize worldwide profits. Brands are delivering campaigns using many digital applications in Asia, Europe, and other regions.⁶⁴ As they demonstrate the power of these techniques, these practices will eventually be introduced into the U.S.

We also examined industry-wide studies that will have an impact on and public policy. For example, digital marketing researchers have engaged in studies of the emerging issue of "brand safety," This recent trend, in which brands can better determine where their ads should be specifically shown as well as contexts that should be avoided, has implications for both regulation and research.⁶⁵ Advocates have already raised concerns with the FTC about the growing ability of digital marketers to use "real-time

bidding” to specifically target a young consumer. Such practices raise important privacy and consumer protection issues.⁶⁶

If unaddressed by public health advocates and policymakers, the far-reaching capabilities of digital marketing will likely exacerbate the current obesity epidemic. Groups already at risk, such as youth of color, will be subject to increasingly sophisticated pinpoint targeting for high-fat, high-salt, sugary foods in their communities, in social settings, and on their personal electronic devices. Multiple viral marketing campaigns will be unleashed that could drive consumption of obesity-related foods. Through the use of measures designed to bypass or undermine rational decision-making, especially in adolescents, the brain itself could become more aligned with the goals of marketers.

Limitations

The research gathered and analyzed for this report provides a window into the food and beverage industry’s latest marketing techniques and inquiries about their effects. We have also tracked and analyzed digital marketing research in other product categories, including financial services and pharmaceutical and health products. In addition, we have surveyed the industry as a whole, including developments occurring in the European Union and Asia-Pacific markets.⁶⁷ The findings reported by the food and beverage companies, as well as the work they have commissioned or support, are in line with other product categories and global markets. Marketers understand the changes in media consumption and use. In 2010, digital ad revenues in the U.S. surpassed newspaper ad expenditures for the first time, for example.⁶⁸

However, we do caution that individual research reports, especially from companies promoting their products and applications, may overstate or over-generalize the actual impact of a specific campaign or technique. It is possible that companies such as Microsoft, which has a large stake in seeing its digital ad business grow, may provide a more optimistic analysis of its many food and beverage campaigns around the world. There is also a great deal of proprietary and specialized research that we have not been able to access, which perhaps includes analyses of the limitations or problems of relying on digital marketing.

We have access only to what marketers are willing to disseminate publicly; the real extent and effectiveness of new research and campaigns informed by the latest industry findings remain under wraps. But every indication is that digital marketing is transforming all of advertising, and communication in general, having a profound impact on individual and community behavior. It is the focus of significant investment in research and development to expand its capabilities, and is being actively deployed by the leading brands, agencies, and marketing companies.⁶⁹

Conclusion

This report and its accompanying online archive of industry research reports and case studies are designed both to serve as a resource for the field and also to help foster a broader discussion within the community of public health advocates and researchers focused on youth obesity. Along with related work done by the investigators and colleagues in developing a conceptual framework and research agenda to address food marketing in the digital era, this report, we believe, builds a foundation to support new and collaborative scholarly and public education efforts.⁷⁰ We encourage researchers and advocates to review and assess the materials assembled for this report, which should lead to more informed strategies for further research and debate. Ongoing efforts to collect industry's marketing research will both create a record of how food marketers have used digital technologies and help the field keep abreast of the latest developments.

Finally, we suggest that funders, policymakers, and researchers informed by this report and its accompanying archive of materials work to minimize the impact of digital food and beverage marketing. If we are to avoid a continuing public health crisis in youth obesity, the field must better understand and respond to what we have described in this project.

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