

## 5.5: Physiological Data

### LEARNING OBJECTIVES

After studying this section, students should be able to do the following:

1. *Compare* and *contrast* each of the physiological sources of data.
2. *List* and *discuss* the advantages and disadvantages of physiological data.

### Conscious versus Subconscious Responses

All of the techniques we've reviewed so far ask consumers to tell researchers what they think or feel. But as we've seen, people sometimes tell researchers what they think they want to hear. Or they give "socially correct" answers rather than their real opinions. For example, a consumer might claim that "safety" is her top criterion when she chooses a baby's car seat when in fact she is a bargain hunter who shops for the best deal. Many times, this isn't because people are dishonest or intentionally misrepresent themselves—they may simply not know or may not be aware of their behaviors and motivations.

Have you ever met someone who puts up a good front about being self-assured and confident—but when you go to shake his hand it's dripping with clammy sweat? Our bodies sometimes tell truths our words deny. One way to address the gap between our internal reactions and what we say is to use physiological tests—technologies that measure consumers' physical responses, such as eye movements or galvanic skin response—to identify what consumers look at or how they react to an ad. Researchers usually collect physiological data in a lab or test setting, but the increasing portability of the equipment is making it possible to take it out into natural settings as well.

### Eye-Tracking

**Eye-tracking technology**, as its name implies, tracks where a person's eyes move and what their pupils do as they look at a particular feature. These tests objectively measure how engaged a person is with an ad and how they react to the images or copy. For example, an abrupt change in a person's pupil diameter indicates how much mental effort she is exerting. If she's looking at a Web site, for example, and suddenly her pupil diameter changes, it's likely she is having difficulty understanding something. What's more, the eye-tracker can tell exactly where the person was looking, to identify the point of confusion. All of this is more natural and objective than interrupting a person to ask them "How difficult was it for you to complete this task?" or "Did you like Design 1 better than Design 2?"

Advertisers also use the Web to apply eye-tracking technologies that measure how people navigate a Web site, where they look for specific information about an item, how they compare different items, and how they navigate to a shopping cart or other areas of the site. For example, EyeTracking Inc. (ETI) offers its *GazeTraces* tool that shows the scanning behavior of a person when she looks at a screen display. This helps the advertiser or agency know which features on the page caught the consumer's attention, which elements she missed, and which elements may have been confusing. ETI uses a patented technique (that the military initially used for training) to estimate cognitive load based on changes in pupil dilation and another tool to estimate the emotional response to television commercials, pictures, and other types of visual displays. ETI will test anywhere from ten to hundreds of people for any given project. The testing usually takes less than thirty to ninety minutes and analysts collect thirty thousand data points each minute.

Companies like STA Travel use eye-tracking to find out if computer-generated branded content is catching people's attention in Web sites or in virtual environments like Second Life. Advertisers use *gaze trails* to determine if viewers look at products placed within TV shows, and if so, for precisely how many seconds. The technology is so precise that it can help an advertiser decide just how to create a set; for example, where would be the best place to put that Coke bottle on the judge's table during a shoot of *American Idol*? "Market Research: As Easy as Putting in a Plug?" *Marketing Week*, September 6, 2007, 29.

Companies like Toyota, Dell, T-Mobile, and Carl's Jr. use eye-tracking technology to measure the effectiveness of their video-game advertising. A study conducted by Double Fusion (a major player in the video-game advertising space) found that more than 80 percent of gamers notice ads while they play video games. One surprise the study discovered: the size of the ad mattered less than where it was placed. On average, smaller ads placed at eye level attracted a gamer's attention 38 percent longer than larger, peripheral ads. For example, gamers who played "Rainbow Six" noticed a small Carl's Jr. ad placed at eye level with the in-game action for 7 percent of the forty-five seconds it was onscreen, but they didn't notice at all a larger ad for Mazda in the game "Need

for Speed” because it was placed toward the top of the screen, away from where they needed to concentrate to play the game. Apparently size doesn’t always matter.

### Galvanic Skin Response (GSR)

**Galvanic skin response (GSR)** is another physiological measure that advertising researchers have used for a long time. This measure is based on the fact that a person’s skin undergoes a change in its ability to conduct electricity when she experiences an emotional stimulus like fright, anxiety, or stress. Theoretically, the greater the change in electrical resistance, the more positive the subject’s reaction to the stimulus. There is some controversy about the validity of this technique, but proponents believe that GSR, like eye-tracking, is more objective than responses researchers collect during interviews or surveys. Jane Imber and Betsy-Ann Toffler, *Dictionary of Marketing Terms*, 3rd ed. (Hauppauge, NY: Barron’s Educational Series, 2000).

Sometimes a study will combine several physiological measures to yield better understanding of respondents’ reactions to a commercial or a show. For example, NBC outfitted volunteers with specially designed vests designed to measure their heart rate, respiration, galvanic skin response, and physical activities as they watched a playback of the TV show *Heroes*. The network wanted to determine if viewers still are affected by commercials that they fast-forward through, even though they aren’t aware of these reactions as the images flicker past. Sure enough, the study found that people’s bodies continue to react to these messages even though they are not consciously aware of these responses. “People did remember brands pretty much to the same extent as they did during real time,” said NBC Universal vice president of news research Jo Holz. Christian Lewis.

### Neuromarketing

**Neuromarketing** is the study of the brain’s response to ads and brands. Unlike eye-tracking and GSR, neuromarketing techniques are more cumbersome and invasive (they require the volunteer to lie down in a big machine and look at pictures, rather than to sit comfortably in front of a computer or TV).

Because the techniques measure brain activity, not just eye or skin response, they have also sparked more protest. Gary Ruskin of Commercial Alert (a nonprofit organization that argues for strict regulations on advertising) is lobbying Congress and the American Psychological Association to stop the research, fearing that it could eventually lead to complete corporate manipulation of consumers (or of citizens, with governments using brain scans to create more effective propaganda).

Proponents argue, however, that just because advertising influences consumers doesn’t mean that consumers don’t have free choice. The governmental regulatory bodies to which Ruskin appealed decided not to investigate the neuromarketing issue, and more companies are commissioning neuromarketing studies. For example, Chrysler conducted a functional MRI (fMRI) study to test men’s reactions to cars. Results showed that sportier models activate the brain’s reward centers—the same areas that light up in response to alcohol and drugs.

Researchers at Carnegie Mellon University used fMRI on study participants who were given \$20 to spend on a series of products. If participants made no purchases, they would be able to keep the money. As the products and their prices appeared on the screen, researchers were able to see which parts of participants’ brains were activated. A brain region called the nucleus accumbens, associated with pleasure, would light up in anticipation of purchasing a desired product, while the insula, a region associated with pain, would activate when they saw a product whose price was excessive. Based on the interaction of these two brain regions, the researchers were able to successfully predict whether a given participant would purchase the product or not. When the region associated with excessive prices was activated, participants chose not to buy a product.

### Advantages and Disadvantages of Physiological Methods

As we’ve seen, physiological measures often can be a useful supplement to other techniques. The following are advantages of physiological methods:

- Remove interviewer bias
- Gather data from the consumer without interrupting them, letting the consumer interact completely naturally with the advertisement or product
- Gather subconscious or hard-to-articulate data (e.g., exactly how many seconds a subject looked at the brand-name pretzels bag on the table during a thirty-minute sitcom)

But these methods can be cumbersome and complicated. The following are disadvantages of physiological methods:

- Costly one-on-one methods that require specialized equipment
- Prone to yielding ambiguous data (e.g., if GSR registers a relaxation response, was it due to pleasure or apathy?)

### Key Takaway

Our bodies don't lie. Physiological measures help researchers to identify emotional reactions to advertising messages. They also can assist in the process of tweaking ads or Web sites to insure that the audience homes in on the important contents (for example, by carefully tracking just where people look in an ad). These measures often are too general to be used in isolation; they might identify a negative emotional reaction to an ad but not yield specifics about just which part of the message is a turnoff. Still, they can be a valuable supplement to more traditional measures of advertising effectiveness.

### EXERCISES

1. Compare and contrast conscious versus subconscious responses to physiological data.
2. Characterize the primary methods for obtaining physiological data for advertisers.
3. List and discuss the advantages and disadvantages of physiological data.

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