

# Decision Making and Coping of Functionally Illiterate Consumers and Some Implications for Marketing Management

A study of the decision making and coping of functionally illiterate consumers reveals cognitive predilections, decision heuristics and trade-offs, and coping behaviors that distinguish them from literate consumers. English-as-a-second-language and poor, literate consumers are used as comparison groups. The strong predilection for concrete reasoning and overreliance on pictographic information of functionally illiterate consumers suggest that companies should reconsider how they highlight the added benefits of new products or the differentiating aspects of existing product offerings across channels such as advertising, in-store displays, and positioning. Concrete reasoning also has strong implications for the execution and presentation of price promotions through coupons and in-store discounts, because many consumers are unable to process the information and thus avoid discounted products. Finally, the elaborate coping mechanisms identified and the loyalty that functionally illiterate consumers display toward companies that are sensitive to their literacy and numeracy deficiencies reveal a potential for loyalty programs aimed at this population that do not involve price discounts.

To be functionally literate, people must have the language and numeracy competencies required to function adequately as adults in day-to-day life (e.g., Kirsch and Guthrie 1977). Because of significant differences in what adult life demands across economies and cultures, researchers have argued for a plurality of literacies, and they emphasize that the skills needed to grasp written and verbal meaning successfully are dependent on context (Scribner and Cole 1981). For example, the language and numeracy skills required of consumers in Central American rural villages are different from those required of consumers in New York City. Moreover, it is possible that New York consumers are less functionally literate in rural shop-

ping contexts than are Central American villagers on Fifth Avenue. However, in economies in which the typical consumer experience involves choosing among differentially priced offerings at self-service displays, the literacy and numeracy competencies required are relatively clear-cut. They include the ability to read labels for information that differentiates product offerings, to navigate complex shopping environments by using signage, to calculate or estimate unit prices as a way to ascertain value, and to keep a running total to avoid being short on funds at the checkout counter. The functional literacy demands in most modern economies are substantial, and the absence of such skills has significant implications for consumers and marketers. How do functionally illiterate consumers navigate shopping environments, choose among the products available, assess value, and cope with the outcomes?<sup>1</sup> Should marketing managers be concerned with these consumers? If they should be, what are the implications of having customers whose literacy and numeracy skills do not match what current marketing practices take for granted?

The question whether marketers should be concerned is addressed by some revealing statistics. In 1992, the National Adult Literacy Survey revealed that between 21 and 23% of U.S. consumers lack many of the rudimentary language and numeracy skills required to navigate the typical retail environment. Moreover, between 46 and 51% of U.S. consumers lack the skills required to master specific aspects of shopping, such as credit applications and sales

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<sup>1</sup>We use the more appropriate term “low-literate” when we discuss the broad spectrum of literacy conditions. However, when we discuss functional literacy, we use the term “functionally illiterate” rather than “functionally low-literate” for improved readability.

agreements (Kirsch et al. 1993). Estimates of functional illiteracy are equally sizable for other industrialized countries and even higher for developing countries (UNESCO 2000). Whereas poverty and low educational levels are associated with functional illiteracy, most functionally illiterate consumers have discretionary income and together represent a significant market. In the United States, most functionally illiterate consumers are employed and, on average, have 40% as much purchasing power as literate consumers (e.g., Kirsch, Jungeblut, and Campbell 1992). Taken with government studies (Bureau of Labor Statistics 2003), this suggests that functionally illiterate U.S. consumers may control as much as \$380 billion in spending. Moreover, given the high incidence of functional illiteracy in emerging economies, in which standards of living and consumer spending are increasing, the global purchasing power of functionally illiterate consumers is significant and likely to increase.

Research on functional illiteracy spans basic and applied disciplines and covers a wide range of contexts and perspectives. It has been argued that literacy influences societies because literate thought is abstract compared with nonliterate thought, and its absence influences the level at which societies respond to their surroundings (Kintgen, Kroll, and Rose 1988). For example, the widespread use of mnemonic and word-syllable communication systems has been credited with new modes of logical thinking and context-independent abstraction (Goody and Watt 1968; Greenfield 1972). In contrast, the oral communication on which low-literate consumers rely is predominantly pictorial, dependent on context, and detrimental to abstraction (Havelock 1963; Luria 1976). Despite what is known about how functional illiteracy influences other domains of human experience, the understanding of its influence on consumers is limited. There has been relatively little research into marketing to functionally illiterate consumers, despite the segment's size and purchasing power (Wallendorf 2001). Therefore, the attaining of a more detailed understanding of how functionally illiterate consumers think and behave can help marketing research and practice better meet the needs and demands of all consumers.

A study of functionally illiterate consumers can take many directions, but we focus on how functionally illiterate consumers navigate shopping environments, assess value, make decisions, and cope with the outcomes of their decisions. We find that functionally illiterate consumers exhibit cognitive predilections, decision heuristics and trade-offs, and coping behaviors. We also find that functionally illiterate consumers struggle considerably with elements of the shopping environment (e.g., product labels, store signs, prices) that most consumers take for granted, and they spend considerable energy and cognitive resources assessing value and making decisions from information that literate consumers process tacitly and automatically. Moreover, functionally illiterate consumers incur distinct emotional and behavioral costs from shopping while displaying ingenuity in coping with such costs. Finally, functionally illiterate consumers respond positively and in sophisticated ways to marketers' efforts to accommodate their needs, and in many cases this leads to consumer loyalty.

We begin with a discussion of our methods. Next, we discuss our findings, highlighting various aspects of functionally illiterate consumers, and compare them with English-as-a-second language (ESL) and poor, literate consumers. We conclude with theoretical and practical implications and limitations of our research.

## Research Methodology

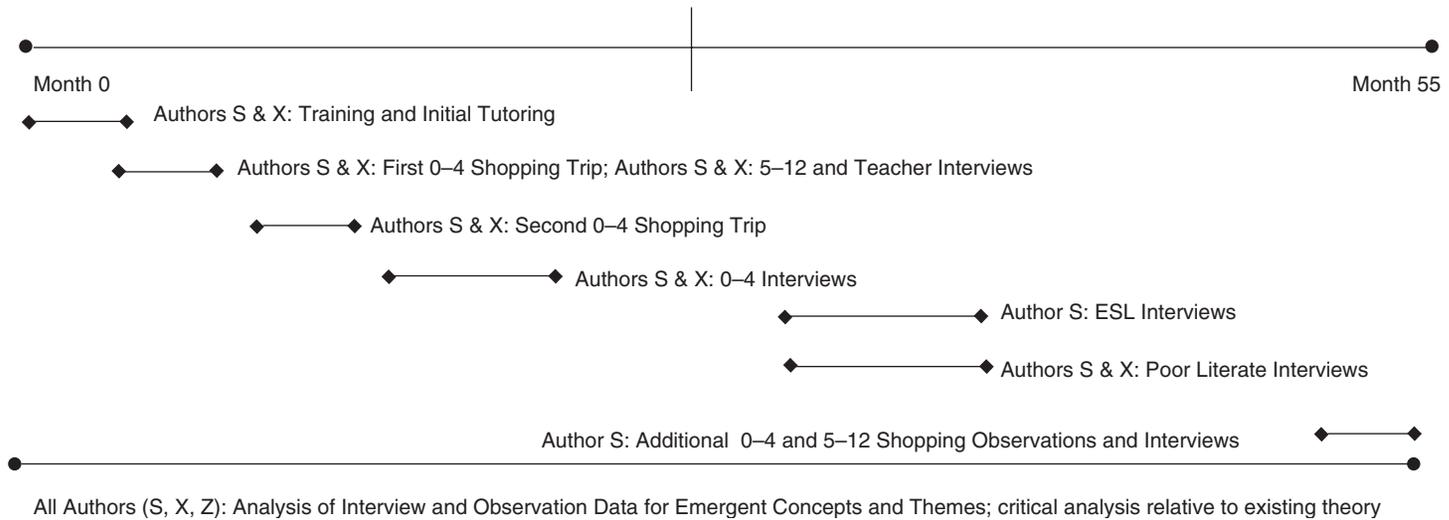
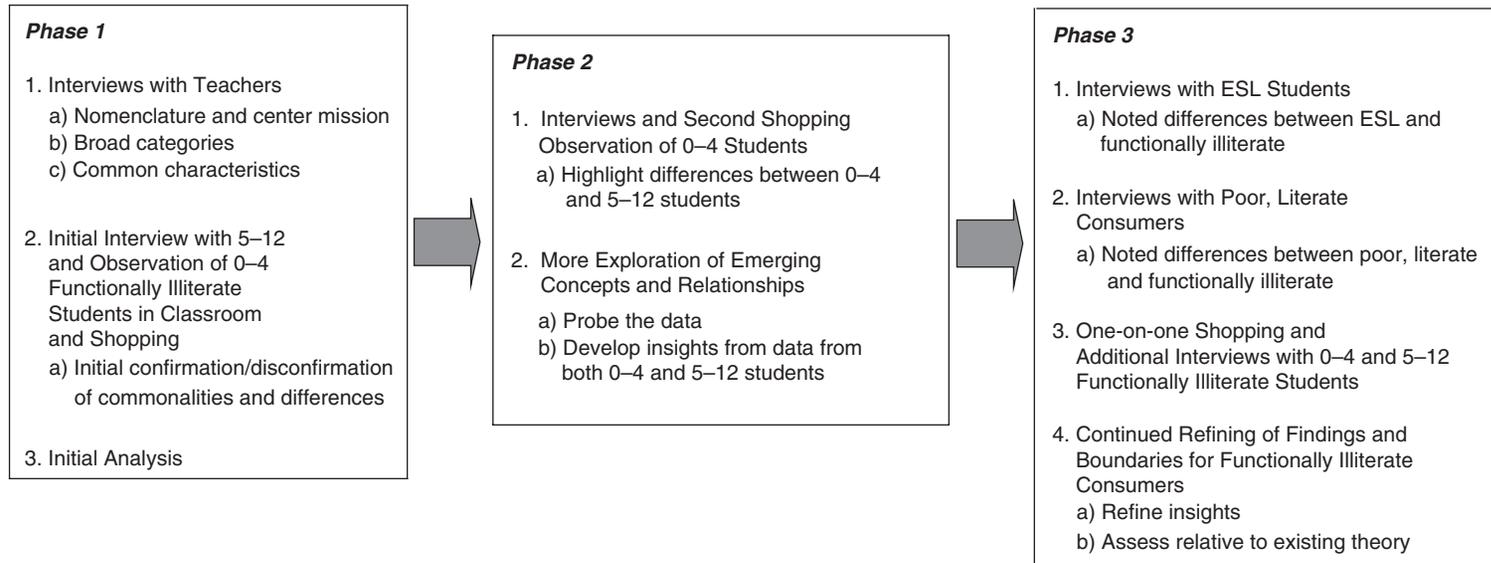
Research into functionally illiterate consumers poses two challenges. First, illiteracy poses significant hurdles to the use of standard instruments, such as experiments and surveys (Wallendorf 2001). Even if respondents receive assistance, it is difficult to ascertain the measurement error that is likely to enter a standard instrument study of functionally illiterate consumers because of the range of abilities found in the low-literate population (Kirsch, Jungeblut, and Campbell 1992). Second, functional illiteracy can be a source of emotional stress and a topic that many respondents will not discuss openly. Because of the limitations, we adopted interviews and observation for our data collection. Our methods are best characterized as part way along the "continuum ranging from positivism to idealism" (Deshpandé 1983, p. 102) and can be furthered characterized as hermeneutic (Spiggle 1994), in that the breadth of data-gathering methods, the categories used to code the data, and the abstraction and comparison of data elements developed iteratively. Our purposive sampling (Lincoln and Guba 1985) was also iterative because we added ESL and poor, literate consumers to our sample as we learned more about functionally illiterate consumers.

However, ours is not an interpretive study in the classic hermeneutic tradition (e.g., Thompson, Pollio, and Locander 1994). We are not attempting to articulate the culturally informed meanings that functionally illiterate consumers attach to product labels, store signage, price information, or shopping experiences. Our objective is to better understand the processes by which functionally illiterate consumers assimilate information and make decisions and to distinguish them from other types of consumers. Even when we explore their coping mechanisms and their antecedents (e.g., anxiety, negative emotion), which by necessity involves meaning nuances, we tried to remain as close as possible to the labels the informants used. Our research is a "discovery-oriented approach" (Bendapudi and Leone 2002, p. 83), in which methods are adapted to the problems being explored and to the unique characteristics of the population under study. Data collection and analysis occurred in three phases, which we depict in Figure 1. We first describe the informants and then different elements of the methodology.

### Informants

The informants were enrolled at adult-education centers in a Midwestern market. They ranged in age from 16 to older than 90 years and were divided into two groups (zero through fourth grade level and fifth through twelfth grade level) on the basis of standardized test scores in math and reading. We provide a list of disguised key informants and their characteristics in Table 1. Details about informant

**FIGURE 1**  
**Data Gathering and Analysis Process**



**TABLE 1**  
**Informant Name, Age, and Reading/Math Level Information**

Name	Age	Educational and Skill Level in Reading and Math
Ben (poor, literate)	21	Not applicable, grade 12 education
Chen (ESL)	27	University graduate, grade 2–6 reading (English)
Dee	16	Grade 5–12
Esther	93	Grade 0–4
Fiona	38	Grade 0–4
Garvey	40	Grade 0–4
Ivan	29	Grade 0–4
Julie	16	Grade 5–12
Kee	38	University graduate, grade 2–6 reading (English)
Kwon (ESL)	28	University graduate, grade 2–6 reading (English)
Larry	57	Grade 0–4
Megan	58	Grade 0–4
Mei Kim (ESL)	26	University graduate, grade 2–6 reading (English)
Naomi	60	Grade 5–12
Onuki (ESL)	26	University graduate, grade 2–6 reading (English)
Otto	38	Grade 0–4
Ricardo	50	Grade 0–4
Rita	22	Grade 5–12
Sam	45	Grade 0–4
Teresa	17	Grade 5–12
Tina	24	Grade 5–12
Henry (poor, literate)	21	Not applicable, some college education
Valencio	21	Grade 5–12
Victoria	25	Grade 5–12
Xenia	46	Grade 5–12

scores are available on request. We added ESL and poor, literate consumers to the study to sharpen our understanding of functionally illiterate consumers and to distinguish the influence of functional illiteracy from related factors such as language proficiency and poverty. We recruited ESL students from classes offered at one of the adult-education centers. Their English skills ranged from second to sixth grade level, and all had one or more university degrees. We interviewed functionally literate, poor adults, whose education ranged from high school to postgraduate studies, at a homeless shelter.

### **Methodology**

We used interviews and observations. At the start of the process, two of the authors attended volunteer tutor training and served as tutors at an adult-education center, one for 150 hours over 18 months and the other for 15 hours over 2 months. The tutoring served a twofold purpose: (1) to identify the best approach for gathering data from the respondents and (2) to establish the trust required to breach the sensitive subject of illiteracy. All interviews were unstructured, but recurring themes from early phases (e.g., Phases 1 and 2) were interwoven, as appropriate, into later phases (e.g., Phases 2 and 3). Interviews ranged from 20 minutes to 2.5 hours (averaging 1 hour), and most interviews were tape-recorded and transcribed. Observation took place during classroom activities, one-on-one tutoring sessions, and shopping trips designed as learning exercises. Teaching at adult-education centers is adapted to student needs and focuses on everyday-life skills. Notes and conversations were recorded during and immediately after observation sessions and were transcribed and analyzed. The zero

through fourth grade reading level students were observed during classroom activities and on two shopping field trips in which shopping tasks were assigned. Students chose to complete shopping tasks either by themselves or in groups.

One-on-one shopping observations of 15 students who had been tutored at the center were conducted during Phase 3 of the study. These informants were asked to complete their typical shopping at a large chain store, and their personal funds were supplemented with \$10 gift cards and two coupons. Consumers were observed from a distance and occasionally approached to ask clarification questions. In-depth interviews followed the observations. Data collection extended over 55 months and included interviews with 14 functionally illiterate consumers at the zero through fourth grade level; 21 functionally illiterate consumers at the fifth through twelfth grade level; 9 ESL students; and 10 poor, literate consumers. It also included one-on-one shopping observations, with 4 respondents of the zero through fourth grade level respondents and 11 of the fifth through twelfth grade level, and two shopping field trip observations, each of which involved 10 respondents of the zero through fourth grade level. The observed respondents were among those interviewed.

Table 1 provides information about respondents who are specifically mentioned or quoted in the findings section. Of the 14 zero through fourth grade level respondents, 9 are listed, along with 9 of the 21 respondents of the fifth through twelfth grade level. Table 1 also lists 4 of the 9 ESL respondents and 2 of the 10 poor, literate respondents. The proportion of listed respondents to total respondents, by category, reflects the level of variance in how literate consumers make decisions and deal with their outcomes for

each group, not the level of intensity with which we studied the groups. The behavior of zero through twelfth grade level respondents differed dramatically from that of ESL and poor, literate consumers and thus receives more attention in our discussion.

**Data Analysis**

All authors analyzed interview and observation data independently, focusing attention on statements and behaviors that shed light on how functionally illiterate; ESL; and poor, literate consumers process information and evaluate alternatives, make decisions, and cope with outcomes and the environment. We analyzed data following established guidelines for qualitative inquiry (Glaser and Strauss 1967; McCracken 1988; Strauss and Corbin 1990), by which we identified commonalities and differences among respondents. We resolved all discrepancies through discussion, and several interrelated themes developed iteratively. The themes were further validated by ten university students who were not familiar with the analysis and who were each asked to read a subset of transcripts for insights into how the interviewed consumers process information and evaluate alternatives, make decisions, and cope with situations that arise during shopping. As a group, the student readers identified the same themes that we identified. In addition, postinferential checks were performed by teachers at the adult-education center, who agreed that our findings characterize the functionally illiterate students that they know. Our findings are elaborated in the next section with quotes from the data.

**Findings**

In general, we found that functionally illiterate consumers display cognitive predilections, decision rules and trade-offs, and coping behaviors distinct from those of literate consumers. The findings are illustrated in Figure 2, arrayed

as a hierarchy, with cognitive predilections as basic or foundational for decision heuristics and trade-offs and ultimately for coping strategies. The hierarchical layout is intended to represent what we perceive as differences in conscious complexity, where cognitive predilections are primitive thought mechanisms or approaches that respondents adopt by necessity, but of which few are aware; decision heuristics and emotional trade-offs are implemented deliberately, but are not always based on sound reasoning; and coping strategies are carefully considered and orchestrated. Although our discussion follows the classificatory scheme in Figure 2, some of the quotes serve to illustrate multiple phenomena (e.g., concrete reasoning and decision heuristics). Their concurrent manifestation in the common language conversation of functionally illiterate consumers serves as evidence of the interrelatedness of the hierarchical levels we impose on the data and illustrate in Figure 2.

**Cognitive Predilections**

*Concrete reasoning.* Functionally illiterate consumers display a predilection for what we call “concrete reasoning,” or the basing of decisions and behaviors on the literal or concrete meaning of single pieces of information (e.g., price, single ingredient content, size) and without regard to the product attributes that are represented by the isolated bits of information. Concrete reasoning was manifest often when consumers struggled with trade-offs. For example, when considering price and size, many functionally illiterate consumers focused exclusively on only one dimension, as illustrated next:

Interviewer: Let’s say you have a big bag that costs \$2.50 versus a small bag that costs, say, \$.90. How do you consider sizes? Do you look for that at all?

Rita: Yeah, I look and see if they’ve the big ones or do they have any smaller size. Just like in cereal. I buy like the ... [pause]. They have the big kinds of cereals, then they have, like, the smaller size. Just like the Raisin Bran; I look to see which costs the most and which costs the less, and so I just get the smaller one because they cost the less.

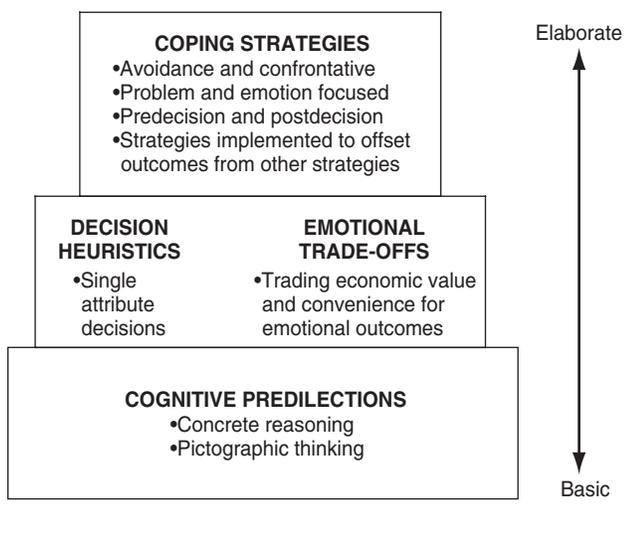
Furthermore, concrete reasoning was evident even when follow-up questions were more pointed.

Interviewer: Let’s say you buy a packet of bread that’s half the size. You are getting less bread for the money. How do you try to make sure it’s cheapest in terms of how much you are getting also?

Naomi: I just look at the tag and see what’s cheapest. I don’t look by their sizes.

The price fixation is often caused by concrete reasoning predilections that emerge even when respondents try to be careful shoppers. The most common shopping approach reported by respondents before they enter adult education is to shop indiscriminately until their money is gone. This approach often results in running short on food and other necessities late in the pay period. To avoid such outcomes, adult-education courses reinforce the wisdom of looking for the lowest-priced products and budgeting weekly, which takes for granted that students are able to calculate or estimate unit costs and shop accordingly. However, because

**FIGURE 2**  
**Conceptual Hierarchy of Findings**



many respondents find it difficult to calculate unit values, they focus exclusively on the price dimension.

Putting aside respondents who report buying the cheapest or smallest product because of financial or storage constraints, there emerge some distinctions among consumers with respect to their concrete reasoning foci. Whereas consumers such as Rita and Naomi focus on lowest price or smallest size, others compare the physical package sizes (e.g., height, width) of products to derive intuitive size-to-price ratios on which they base their decision, but they do not use the standard volume or unit information printed on labels for their decision (e.g., a tall 16 oz. bottle may be perceived as containing more than a short 16 oz. bottle). When asked, respondents who relied on physical package characteristics for their decision reported that they checked sizes and received the best deals, but their claims were not borne out when unit prices were checked.

Not all concrete reasoning focused on price. We also found respondents who fixated on single attributes, such as sugar or sodium content.

Teresa: Anything sweet, I eat it.

Interviewer: And how do you tell what the sugar is?

Teresa: I go down, and we've got, like,... Some of them say 14 grams; the other might say 46 grams [of sugar]. I get the one that got the most.

Interviewer: Is there anything you look for on the package when you are buying canned food, other than price?

Megan: The sodium. It tells you like 30% and stuff like that.

Interviewer: What would be high?

Megan: About 40% would be high. I can't have too much sodium.

Other consumers focus on fat content and calories, usually without regard to serving sizes or how much of a particular ingredient is appropriate given the product type being considered. Respondents did not report trading off between arrays of product attributes.

In contrast, and without exception, ESL consumers are able to make and articulate complex multiattribute and price-size trade-offs in the same way that literate consumers are expected and advised to do.

Interviewer: OK, how do you decide whether to buy large or small? Do you look at price? Do you look at size?

Mei Kim: If it's more cheaper, then I buy the large size... For example, small size, two times the large size, but price is 1.5 times or something; I buy it large size.

Poor, literate consumers also reported multiattribute and price-size trade-offs without exception.

Henry: I look at price. If I can get it in economy size for cheaper on a per-unit basis, I'll get the economy size.

We also found similar trade-offs for product attributes such as nutritional or caloric content on a standard serving basis. Unlike functionally illiterate respondents who did not seem to grasp the notion of attribute or price-size trade-offs or could not articulate how they considered these issues, ESL and poor, literate respondents displayed a clear grasp of the

concepts involved. As an aside, they perceive price-size and attribute trade-offs as essential and taken-for-granted aspects of shopping. Some were surprised when we asked if they performed trade-offs, as if they found it difficult to envision who would not.

Another manifestation of concrete reasoning by functionally illiterate consumers is their difficulty in transferring knowledge across domains of experience, in this case shopping venues. Poor, literate and ESL consumers did not report anxiety or confusion when visiting new stores. Both groups welcomed opportunities to shop in novel environments. In contrast, nearly all functionally illiterate respondents became anxious when they shopped in new stores. They had difficulty transferring the shopping skills gained from adult-education classes, such as comparing prices and considering private label products, when shopping in new stores. Some even exhibited difficulty transferring basic arithmetic skills across different domains.

Interviewer: OK, now, before you went to adult education, would you check prices like you're checking now?

Otto: No, I'd just go in and get stuff and throw it in the basket and keep going.

Interviewer: Even though you could count very well?

Otto: Yeah, I'd just throw it in there and go, not even worry about it. But now, you see, you gotta look, be careful, you know.

Otto is someone who needed to be taught to apply arithmetic skills when shopping, despite having proved his numeracy skills in other contexts. Before going to prison, he sold illegal drugs for several years, a profession in which counting errors can result in beatings or worse. In that occupation, Otto handled transactions worth hundreds of dollars and made proper change on street corners. However, he could not process prices and keep running counts in grocery stores. In other words, his numeracy skills were context dependent. Another example of context dependent numeracy comes from Esther, who entered the adult-education center in her eighties. Although Esther has difficulty with simple arithmetic tasks in the abstract (e.g., adding columns of numbers), she can keep a running total of what she has put in her cart and compare it with whatever she has available to spend on the basis of magnitude relationships between currency types that she learned as a youth. If Esther can hold or envision dollar amounts in currency (e.g., bills and coins), she can perform simple addition and subtraction and maintain a relatively accurate running total of her purchases. She cannot make the same calculations in classroom exercises.

Our findings are consistent with previous research that shows that low-literate people can perform concrete operations on specific units such as time and engage in concrete context-sensitive thinking based on practical necessity, but they have difficulty with trade-offs that require abstraction (Greenfield 1972; Luria 1976). Among functionally illiterate consumers, price appears to be a central unit on which concrete operations are performed. The necessities of handling money, transacting on the basis of price, having relatively available price information, and identifying the lower price (i.e., the lower number) relatively easily are likely fac-

tors that influence concrete reasoning using price. However, combining attribute information to generate value abstractions seems to be beyond the common practice of many functionally illiterate consumers.

*Pictographic thinking.* A related predilection revealed by functionally illiterate consumers is for pictographic thinking, or the attachment of literal and concrete meaning to pictorial elements, such as color, font, package illustrations, and even words, instead of the abstract and metaphorical meaning often intended. Pictographic thinking is not simply the use of pictorial information as representative of products or attribute arrays when choosing brands or viewing advertisements. This is something that literate consumers also do (Scott 1994). Pictographic thinking extends beyond a high reliance on pictures and includes the treatment of symbolic information (e.g., brand names, dollar amounts) as images, or visualizing amounts to buy rather than using the more symbolic weight or volume information. In the case of functionally illiterate consumers, we found inordinate and sometimes exclusive reliance on the pictographic characteristics of encountered stimuli and an accompanying face value interpretation of whatever was being attended to. Use of physical package sizes (e.g., height, width) to perform price-to-size value assessments is one example of the pictographic thinking we encountered.

Many functionally illiterate consumers reveal an almost complete reliance on context-based pictorial representations. We also found that many functionally illiterate consumers treat product category nomenclature on store signs (e.g., canned soups, paper products), brand names, and even frequently encountered numbers as objects in a scene or photograph and dismiss much of the symbolic meaning behind the bits of information. In turn, such mental handling of information leads to confusion when the graphical characteristics (e.g., font style, color) of familiar words and brands are altered. A pointed example comes from Garvey, who spent almost 30 minutes looking for ice cream during a shopping excursion at an unfamiliar store. Garvey was made nervous by the store layout, which interfered with his ability to apply the rudimentary reading skills he had acquired in class. He wanted to rely on pictographic thinking, but because the graphic characteristics of the store signage (e.g., color, font, background) were different, he was not able to navigate the store by relying on pictographic thinking either. His fallback strategy was to walk up and down the aisles until he spotted the logo for his favorite brand of ice cream, relying on pictographic thinking at the package level.

The most common use of pictographic thinking was memorizing brands as combinations of letters in specific fonts and colors without processing the brand name as a word. Otto, who could count but not read, made most of his purchase decisions that way. He seemed to have a pictographic image of brands, irrespective of his liking for them after previous purchases. He relies almost exclusively on those images when making decisions. It is not surprising that he made mistakes when almost identical packaging was used for different products (e.g., Domino's brown sugar and white sugar). Along with several other respondents, Otto also reported using pictographic thinking as a surrogate for

shopping lists. He visualizes cooking situations (e.g., making stew) to determine how much of each ingredient to buy, and he shops by picturing himself going through the act of cooking different dishes, picking up products as his cooking mental episodes unfold.

Another manifestation of pictographic thinking is the way many functionally illiterate consumers relate to currency. Functionally illiterate consumers such as Esther recognize coins and paper currency because of the faces on them. Many consumers have memorized the relative order of value between currency denominations (i.e., \$5 is less than \$10) in the same less-than or greater-than way that they recognize which product has the lowest price in a particular category. As does Esther, many students display rudimentary arithmetic skills when exercises are framed in the context of money, but they have difficulty applying the same skills in the abstract. Luria (1976) reports a similar reliance on pictographic thinking and the manipulation of images in the estimation of travel times between cities among low-literate peasants.

Some respondents recognized pictographic thinking as a strategy they use. Ricardo exemplifies consumers who recognize their predilection for pictographic thinking.

Ricardo: Sometimes I still have trouble with words. I am more sight reading. If I see something or a word that I don't know, and you show it to me and tell me what that word is, a lot of times, the next day or the day after, I am still going to know what that word is. I call it sight reading....

Interviewer: When you're buying groceries have you ever been confused in the store because of reading?

Ricardo: No.

Interviewer: How do you do it?

Ricardo: If I want a can of Spam, I know it when I see it.

Interviewer: If I gave you a bunch of cans on the wall how would you see it?

Ricardo: It has the name of it on it.

Interviewer: New words?

Ricardo: Then I might have to ask somebody and I am not ... [pause]. The majority of food products, I know. I know Kellogg's cereal and a lot of that food is still on the shelf and I haul a lot of it. It's not a problem with me, you see.

Ricardo recognizes that he is not reading, but in effect he recognizes brand logos in the same way he might recognize people he knows in a photograph. This method is what he calls "sight reading." Ricardo's approach to buying Spam is the same as Garvey's searching for ice cream in a new store. Ricardo is also notable in that he is an interstate truck driver who relies on pictorial representations of street names or parts of names to navigate between cities.

Poor, literate consumers did not exhibit reliance on pictographic thinking, other than the imagery shortcuts common to literate consumers (Scott 1994). The ESL consumers exhibited some pictographic thinking, such as dependence on brand logos and pictorial menus, but it did not extend to treating numbers as surface-level pictorial representations or visualizing usage situations (e.g., cooking) to guide their shopping. The ESL consumers reported that

they treated some information at the pictorially based surface level, and they recognized why they were doing it.

Interviewer: Why don't you ask the waitress?

Onuki: When we just got here, we can't really understand what he says.

Interviewer: Then what did you do?

Onuki: The senior schoolmate would communicate with him in English, but we couldn't understand what they're saying. So actually till this day I still don't know how to order food, since they [the seniors] are all gone. We can only remember where the approximate position of the food we order was on the menu.

The ESL consumers also reported that their reliance on pictographic thinking was a tactic to overcome language difficulties. Many expressed that they had overcome their need for pictographic thinking the longer they lived in the United States or that they expected to overcome their need over time.

The distinction between how ESL respondents and functionally illiterate respondents manage number information is also important because it has implications for the differences in the value assessments we noted previously. All ESL respondents in our study had a university education and a familiarity with numbers and relations between numbers as abstract conveyors of information. It is not surprising that they were able to use number information as intended and to make value assessments between products, even if they could not read all the information offered on the package. However, functionally illiterate consumers treat both words and numbers as pictorial elements, and they engage in surface-level processing of both types of information. Thus, they are more limited than ESL consumers in assessing value.

Pictographic thinking is a predilection consistent with findings that illiteracy leads to graphic thinking anchored in the here and now (Luria 1976). Moreover, the interrelationship between concrete reasoning and pictographic thinking is noteworthy. Pictographic thinking reflects a primitive ability to process information with a one-on-one correspondence to the physical world that is available to the senses rather than to the symbolic world that develops with literacy (Havelock 1963). This is the mode of processing that functionally illiterate consumers favor. When functionally illiterate consumers are confronted with the practical necessity of completing transactions that involve price or choosing products by using symbolic information, they concretize the decision task by focusing on single attributes, such as price. In general, functionally illiterate consumers function primarily in the visual and concrete realm rather than in the symbolic and abstract realm.

### ***Decision Making by Functionally Illiterate Consumers***

*Decision heuristics.* Some of the data discussed in the preceding section also reveal examples of single-attribute, habitual, and random product choices among functionally illiterate consumers. For example, Teresa focuses on sugar and consistently chooses products high in sugar, whereas

Megan focuses on sodium. We also find decisions based on small size as a surrogate for low price. Naomi applies the same "buy the small one" rule to everything she buys, from potato chips to laundry detergent. This is in contrast to literate consumers, who consider multiple attributes (e.g., price, size, content, performance characteristics) and perform mental trade-offs among such attributes. Moreover, we found that Otto used to apply a random choice model in his shopping but more recently switched to a habitual choice model that processes brand names as pictorial elements.

The data also provide clear distinctions between the context-based single attribute decisions of functionally illiterate consumers and consumers who, on the surface, appear to focus on single attributes but actually base their decisions on abstraction and inference processing that we did not find among functionally illiterate consumers.

Interviewer: Imagine you have [a product package] in your hand. What kind of information do you look at? What's the first thing you pay attention to?

Chen: The first I'd pay attention to is what it's selling, whether it attracts me or not, does it look tasty on the picture.

Interviewer: So pictures are important?

Chen: Yeah. If the picture attracts me, I'd look at its price secondly. For price, I'd see if I can afford it, is it too expensive. If the price is OK, then calories. If a small thing has high calories, then I won't buy it.

Interviewer: How about ice cream?

Chen: If it's ice cream, then I don't look at the calories.

Interviewer: So it's selective.

Chen: If I look at the calories, then I can't eat it. It'll be too painful [smiles]. For ordinary stuff, I'd look at the calories.

Chen uses an elimination-by-aspects rule (Russo and Doshier 1983) when purchasing products, holding different decision criteria for different product categories and moving between focal attributes and decision standards with relative ease. Ice cream is held to a price constraint but not a calories constraint, and it appears that few products are allowed such an exception. Chen relies on stored category knowledge, possibly derived from some form of compensatory processing during previous shopping trips, to make inferences and abstractions (in much the same way literate consumers apply noncompensatory rules). However, in the case of functionally illiterate consumers, the rules are basic, applied without adjustment across most if not all product categories, and do not seem to involve abstraction or inferences. Although functionally illiterate consumers apply noncompensatory, single-attribute decision rules, they apply the rules at a more concrete level than that used by literate consumers. We believe that the applications of single attribute decision rules by functionally illiterate consumers are better classified as a coping mechanism implemented as a result of social context (Luce, Bettman, and Payne 2001) than as the use of noncompensatory decision rules (Russo and Doshier 1983).

Megan's shopping behavior further illustrates the idea that functionally illiterate consumers apply single-attribute decision rules as coping mechanisms. In addition to the "avoid sodium" rule, Megan applies a "buy the cheapest" rule to most purchases, where "cheapest" is assessed in terms of package price. We observed Megan ponder for several minutes the choice between a small \$3.38 box of Honey Nut Cheerios and a "two boxes for \$6.00" deal on the larger size of the same cereal. She visually moved back and forth between the choices several times and, at one point, handled the larger box for several seconds to assess its weight. Abruptly, however, she placed the small box in her shopping cart, and when we asked why she chose the smaller box, she answered that "it was cheaper." On the basis of her indecision and apparent stress over the decision, we concluded that she recognized that applying a compensatory rule would be desirable, but her difficulty in performing the calculation pushed her to decide on surface characteristics. Megan is anchored in the concrete world of the senses (Luria 1976), and she applies single-attribute decision rules at the same concrete level of thinking, a level that is different from what we found that ESL and poor, literate consumers used.

*Emotions and decision trade-offs.* Megan's struggle over the Cheerios purchase highlights another distinguishing characteristic of functionally illiterate consumers: the experience of adverse emotions associated with purchase decisions. Stress and anxiety over purchase decisions does not affect only functionally illiterate consumers. In some circumstances, such as choosing a family health plan, for which trade-offs between coverage and affordability are required, decisions can provoke anxiety for any consumer because of the potential losses that the different alternatives entail (Luce, Bettman, and Payne 2001). However, among functionally illiterate consumers, we found recurring and acute anxiety even in circumstances that, on the surface, did not seem to merit such emotional reactions (e.g., shopping at a new store). Because of their difficulty in performing calculations or in reading store signs and labels, and because of the reactions of store personnel and other consumers to such difficulties, functionally illiterate consumers experience negative emotions and often find their self-esteem undermined. They make significant trade-offs to avoid negative emotions and to protect their self-esteem in marketplace encounters.

Interviewer: If something is 30% off and the price is \$19.98, would you go up to a person and ask how much it really is?

Dee: No.

Interviewer: Why not?

Dee: I'd be embarrassed.

Dee is not alone in refusing to ask for assistance in stores or in avoiding products with fraction-off and percentage-off labels to avoid dealing with price uncertainties. Julie, another respondent, only considers products that are 50% off because she can estimate the cost as half of what is posted. She avoids all other fraction-off or percentage-off discounts. In addition, we find that many

respondents will not shop alone and expend considerable effort coordinating with other parties and planning shopping events in advance to avoid negative emotions and stress. In effect, they avoid the possible negative emotions and stress of shopping by delegating their shopping to family members and other trusted persons.

Naomi: No, I don't do too much stuff, my daughter do all the shopping....

Interviewer: You used to do a lot of shopping?

Naomi: No, not really. You know, when I am a daughter, my mom did a lot of shopping.

Delegating shopping to others involves trading away convenience and time for the sake of avoiding emotional costs, because it places functionally illiterate consumers at the mercy of other people's schedules. An extreme case of such delegation that we found is a consumer who shops only when her brother comes to visit every few weeks. In many of the cases we found, the delegation of shopping responsibilities is a coping strategy driven by the avoidance of emotional costs. Moreover, it is not difficult to imagine that some of the consumers probably suffer privations when their supply of important products is exhausted before their next planned shopping excursion, which adds welfare to the time and convenience that they trade away.

Another strategy to shopping delegation is to schedule shopping trips around the availability of store personnel who help the consumers. Garvey plans his shopping trips around the work schedule of a cashier who is aware of his literacy and numeracy deficiencies and who is willing to work with Garvey when items in the shopping basket exceed the funds he has on hand.

Interviewer: Are you ever afraid that you don't have enough money?

Garvey: Yeah. I try to add up in my head. It is just right sometimes, and sometimes it goes over.

Interviewer: How does that make you feel?

Garvey: Not too good.

Interviewer: If you go over, what happens?

Garvey: Nothin' really. You just say, "I can't buy that and have to take it off." I know the woman at County Market.

Garvey's case is a good example of relationships between store personnel and customers contributing to store loyalty (e.g., Macintosh and Lockshin 1997), which in this case involves a sensitive issue. An additional observation about Garvey is the unmistakable sense of comfort that he drew from knowing that nothing would happen if he went over at the checkout counter. Not all functionally illiterate consumers were that fortunate. We interviewed several who attached great significance to seemingly trivial occurrences, even celebrating when they had enough money at the checkout counter or despairing when they were short of money.

In general, we find that functionally illiterate consumers invest substantial effort in non-product-related aspects of shopping to reduce negative emotions. Moreover, we find that many undertake time, value, and welfare trade-offs to

reduce stress and emotional costs. Similar trade-offs were made by some ESL informants, but not by any of the poor, literate consumers we interviewed. For example, Onuki appears to give up dining variety by always choosing from the same section of the menu so as not to interact with the waiter or waitress. We also encountered several ESL consumers who had recently arrived in the United States and relied on friends to help them navigate shopping environments. At least for a short time, such consumers gave up time and convenience. Other ESL consumers shopped primarily at a single store because it was within walking distance of their home and they did not have autos. The same applied to poor, literate consumers who were limited in their choice of shopping venues because of transportation problems. In general, however, ESL and poor, literate consumers exhibited little stress over shopping and were comfortable shopping in different stores as circumstances dictated or as opportunities emerged. If friends invited them to other stores, ESL and poor, literate consumers went enthusiastically. They did not report feeling anxious about changes in shopping venue despite the challenges that different signage and product locations represent, and they shopped as needed without undue reliance on friends and family. The ESL and poor, literate consumers we interviewed exhibited independence and self-determination similar to what we expect from literate consumers and around which many marketing practices are based.

### ***Coping Strategies of Functionally Illiterate Consumers***

Given the anxiety and emotional costs that many functionally illiterate consumers associate with shopping, we were not surprised to find various avoidance and confrontative coping strategies, some problem-focused and others emotion-focused and some implemented before product choice decisions and others implemented after the decision. Some of the coping strategies are also used by ESL and poor, literate consumers, but we noted differences in the frequency with which the different groups use different strategies. The observed coping strategies are summarized in Table 2. We classified them as avoidance and confrontative strategies (Luce, Bettman, and Payne 2001; Mick and Fournier 1998) and problem- or emotion-focused (Luce, Bettman, and Payne 2001) for illustrative purposes, based on the primary reason that respondents gave for using that strategy (typically in response to a "Why did you do that?" question). We also categorized the strategies as being implemented prepurchase decision or postpurchase decision. The categorization scheme is not meant to be exhaustive or definitive. In addition, some of the coping strategies can overlap categories, particularly with respect to emotional and problem-solving motivations. We also find that functionally illiterate consumers often implement coping strategies simultaneously, which reinforces the previous observation that shopping behaviors can involve advanced and intricate planning. Our discussion intermingles some avoidance and confrontative strategies.

Some of the commonly used coping strategies are evident in examples we have already presented. Same-store and same-brand strategies are examples of accepting the

status quo (Luce, Bettman, and Payne 2001). The strategies are also common among ESL informants, though predominantly among those who had been in the United States for a short time. As the tenure of ESL informants in the United States increases, their brand and store loyalties decrease.

Interviewer: Can you describe to me what it is like when you go shopping when you just arrived here, and then after one year, two years, and now?

Kwon: The first year I just stick to my habit from Taiwan. So most of the cases I just choose what used like the stuff in Taiwan. I was willing to try something, but I should say that the habit is a little different from what I am right now. I kind of understand the stuff I want to buy and kind of try out the weird things I have. So I'm a little more Americanized now.

Other coping strategies are to avoid fraction-off and percentage-off prices and to base decisions on single attributes, both of which are problem-focused strategies in situations in which information-processing capabilities are limited. As we observed and listened to informants, we also detected an underlying need for them to perceive themselves as in control and competent as consumers, which comes across as an emotion-focused motivation.

We already mentioned shopping with family members and relying on other trusted helpers. A related strategy is carrying limited amounts of cash so as not to overspend. Victoria implements all three. She primarily relies on her mother but will turn to others if needed, and she carries a limited amount of cash (\$5) when shopping alone.

Victoria: Well, if I'm, like, at the store with my mom and stuff, I go around, put all the stuff in my cart, I wait until I find her, and then I go, "Mom, do I have enough money for this?" and if she tells me no, then I put back most of the stuff.

Interviewer: What about when you are shopping on your own?

Victoria: When I'm shopping on my own, I mostly stay in my budget.

Interviewer: OK.

Victoria: If I, like, had \$5 on me, I would just get one thing. That would be something that is, like, \$3 or cheaper than \$5.... Yeah, I don't, like, add very well and stuff, so it's kind of confusing to me. I would need someone to help me with it. Like, I would call somebody in the store or an adult—whichever is with me—and I would ask them.

Another common strategy is to give cashiers all the money they are carrying, trusting cashiers to give them the correct change.

Interviewer: What is the most you have spent?

Larry: \$200 or \$300. I don't count it out. I give [the checkout clerk] the money I have in my pocket. I can't read.

We found that many informants used dissimulation as part of their coping strategies. Some stand in store aisles and pretend to study product labels and compare prices so other shoppers cannot guess their literacy and numeracy deficiencies. Otto used to cover up his deficiencies by claiming to have vision problems.

**TABLE 2**  
**Coping Strategies**

<b>Coping Strategies</b>	<b>Classifications</b>
<b>Avoidance</b>	
Shop at the same store: avoids stress of unfamiliar environment	Problem focused: shops effectively Predecision: habitual choice about store helps with choices about products
Shop at smaller stores: avoids cognitive demands from product variety	Emotion focused: reduces stress Predecision: requires advance planning
Single-attribute decisions: avoids stressful and complex product comparisons	Problem focused: makes decisions manageable Emotion focused: preserves image of competence Predecision: requires advance planning
Avoid percentage- and fraction-off discounted items: avoids difficult numerical tasks	Emotion focused: reduces stress Problem focused: less chance of mistakes Predecision: implements habitually
Buy only known brands (loyalty): avoids risks from unknown brands	Problem focused: facilitates shopping Predecision: implements habitually
Rationalize outcomes to shift responsibility: avoids responsibility for outcomes	Emotion focused: protects self esteem Postdecision: implements after outcome is clear
Carry limited amounts of cash: avoids risks of overspending and being cheated	Problem focused: controls transactions Predecision: requires advance planning
Buy small amounts more often: avoids risk of large scale cheating	Problem focused: controls transactions Predecision: requires advance planning
Pretend disability: avoids revealing deficiencies and embarrassment	Problem focused: obtains assistance Emotion focused: preserves public image Predecision: requires advance planning
Pretend to evaluate products and prices: avoids revealing deficiencies indirectly	Emotion focused: preserves public image Predecision: requires advance planning
<b>Confrontative</b>	
Shop with family members and friends: enables others to know deficiencies	Problem focused: helps shop on a budget Predecision: involves advance planning
Establish relationships with store personnel: enables others to know deficiencies	Emotion focused: avoids embarrassment and stress Predecision: involves advance planning
Seek help in the store: enables others to know deficiencies	Problem focused: facilitates final decision Predecision: leads to a purchase decision
Give all money in pockets to cashier: admits deficiencies, plays on honesty standards	Problem focused: avoids not being able to count Predecision: implements habitually
Buy one item at a time: addresses the problem of loss of control when turning over cash	Problem focused: controls pace of transactions and flow of funds Predecision: requires advance planning
Confront store personnel and demand different treatment: focuses on responses and behaviors of others	Emotion focused: seeks to minimize or eliminate embarrassment and to preserve or restore public image Postdecision: implements in response to others
Plan expenditures with assistance from others: enables others to know deficiencies	Problem focused: facilitates a budget Predecision: involves advance planning

Interviewer: So, you mentioned before that if you needed somebody's help and you would ... [interrupted].

Otto: I would be embarrassed, I would lie, tell them that I need this, help me with this, but now I don't have to lie no more. If I can't read, I just can't read. Could you please help me if you don't mind? I'm more comfortable....

Interviewer: Now, you mentioned that sometimes you would say, "Well, I can't read, can you help out?" What else would you do to get by before, when you were shopping?

Otto: I tell people I got problems with my eyes. "I can't see." "I don't have my glasses with me." "Could you help me please?"

Some coping strategies are implemented to offset outcomes from other strategies. Sam does not know how to make change and is one of many informants who gives all their money to cashiers and expects the right change back. To avoid being cheated and remain within budget, Sam also implements a "one-item-at-a-time" strategy at fast-food restaurants.

Interviewer: How much money does it normally take?

Sam: \$10 or \$20.

Interviewer: How do you know what you want to buy?

Sam: I look at the menu and look to what you want and you got to figure out what it's going to come to.

Interviewer: How do you do that?

Sam: First you buy one thing at a time, so it come to a different price.

Sam also reports buying in small quantities and visiting stores more often to reduce the risk of being cheated.

The coping strategies discussed thus far are predecision strategies. Functionally illiterate consumers spend a lot of time planning and developing ways of getting around the challenges and negative emotions involved with shopping. They also implement postdecision coping strategies, such as retrospectively rationalizing outcomes so as to shift responsibility away from the self. For example, Victoria had a car repossessed for missing payments. She took responsibility for not staying in school and acquiring literacy skills but shifted responsibility for losing her car to unscrupulous lenders. Another example comes from Valencio.

Valencio: I bought chicken plenty of times, and it was spoiled. Because the workers that work in the back that's making the chicken, they be taking the old chicken and selling it. They don't sell the new chicken. It's just crazy. But like I said, I bought chicken before and it was spoiled. I took it to the store, but I couldn't get my money back.

Interviewer: This only happened to you one time?

Valencio: It happened to me a couple of times. Not at the same store, but at different store. You know, it was spoiled.

Interviewer: Why wouldn't they let you take it back?

Valencio: I don't know. I don't know if they was prejudiced or what. I don't know. I came to them the correct way. I said, "I bought some chicken. Here's my receipt, and the chicken is spoiled. And you can smell it if you

want to." "Well, we can't take it, sir, because it's opened." So I said, "Well, when I took it to the house I had to open it to put it in some bags, and it was spoiled." So, what am I supposed to do? For me not to argue with him I said, "No problem." I just gave him the chicken and I just went to the house. I didn't provoke anything, you know. I'm not going to make myself look bad for arguing with the man over the chicken.

Valencio was convinced that backroom clerks relabeled past-dated chicken and placed it back on store shelves. That other people do not report similar problems after shopping at the same stores does not affect his thinking. Sam used similar rationalizations to account for why he sometimes falls short of cash, attributing shortfalls to being cheated by retailers.

Another postdecision coping strategy is to remain passive and personable even when negative outcomes arise from being functionally illiterate. Garvey put on a "no-big-deal" air whenever his groceries exceeded how much he had available. Xenia responds more proactively but remains friendly and courteous throughout the situation.

Interviewer: Have you been embarrassed going over and not having enough money? Has that happened?

Xenia: Yeah. Like, I went to IGA to buy some things and the money that I pick up off the table at home was not the money I supposed to pick up so when I finish buying everything I just take out the money and hand it her and she says, "No, this is \$5 you gave to me," and it [the total] was over \$10, almost \$20. Then I'm like, "Oh my God, I feel so bad." I tell her, I say, "OK, don't put it back. I'll just walk home and get the money and come back." I says, "OK?" She says, "Yes." So I went home and get the money.

Being friendly and courteous was common among functionally illiterate consumers, who also tend to be more passive and accepting than literate consumers.

In contrast, ESL and poor, literate consumers displayed more combative tendencies and less willingness to forgive retailers for negative experiences and the emotional or tangible costs incurred. Ben (a poor, literate consumer) exemplifies the general response of poor, literate and ESL consumers when they are stigmatized by retailers, aggressively confronting store employees who he believed were not treating him properly.

Ben: I was at the grocery store not too long ago. We were pricing Christmas gifts, because our money was tight. We are doing some price comparison shopping. This lady from the front ... immediately just looks funny at us. We are walking through the store and she starts to follow us. "Is there a problem?"... "Do you think we are shoplifting?" She goes, "You do look kind of suspicious." We filed a grievance with the store and I have asked my friends not to shop at the store until the grievance is taken care of.

In general, we found ESL and poor, literate consumers to be more willing to be confrontative and to demand different treatment from store personnel, and ESL consumers only hold back because of social norms. In contrast, functionally illiterate consumers were consistently more passive; most of the functionally illiterate respondents accepted the status

quo of being treated differently as a metalevel coping strategy (Luce, Bettman, and Payne 2001).

## Contributions, Limitations, and Further Research

Our research sheds light on functionally illiterate consumers, an understudied population with measurable and significant purchasing power. We identify cognitive predilections, decision heuristics and trade-offs, and coping strategies that influence many of their behaviors. The factors distinguish functionally illiterate consumers both from literate consumers and from consumers who, because of poverty or limited language skills, may be considered similar. Our research provides valuable insights and has important implications for marketing research and practice.

### **Implications for Marketing Research and Management**

A fundamental theoretical issue that this research raises is whether existing models in marketing are adequate in capturing the decision making of functionally illiterate consumers. The model of the “cognitive miser,” who seeks to economize on cognitive resources, for example, has been prevalent in marketing and psychology. However, the view that arises from our research is more of a “cognitive survivor,” who, despite spending considerable resources, cannot readily engage in the abstract and analogical thinking that makes cognitive miserliness possible.

Our findings emphasize that several extant theories and models of consumer behavior (e.g., Luce, Bettman, and Payne 2001) should be expanded to take into account functionally illiterate consumers. Despite being employed and having considerable spending power, functionally illiterate consumers process information and make decisions in ways that do not match commonly held beliefs about the influence of brand information, pricing, and product attributes on consumer judgments and choices. Functionally illiterate consumers also violate assumptions about the importance of value-producing rather than non-value-producing aspects of decision contexts. In many situations, they base decisions almost exclusively on non-value-producing factors, such as familiarity with the shopping environment or the personalities of sales personnel, instead of on product attributes and price. It seems reasonable that the incorporation of a deeper understanding of functionally illiterate consumers into marketing theories will result in theories that have greater explanatory and predictive power and in more effective marketing practice. Similar arguments can be made in the realm of public policy, in which regulation that pertains to product labeling, pricing, and branding has been implemented without apparent consideration of the needs of functionally illiterate consumers.

The broad implication of our findings for marketers is that careful consideration of and research into the functionally illiterate segment with an aim toward enhancing all elements of the marketing mix can be beneficial. Marketers can use the cognitive predilections, decision heuristics and trade-offs, and coping strategies that we identify to examine and design their interactions with consumers in the areas of

product, price, promotion, distribution, and customer service. Even more poignant are some of the managerial implications of having such a large segment of the population unlikely to process word and number information as managers intend. We believe that the incidence of functional illiteracy has strategic implications in areas such as product differentiation and new product introduction, avoidance of product liability, management of price promotions, and customer loyalty programs. Functional illiteracy also has significant tactical implications for retailers and product managers. Because of space limitations, we discuss some of the strategic implications next and include, without extensive discussion, an illustrative list of tactical considerations in Table 3. We link the presented implications to cognitive predilections, decision heuristics and trade-offs, and coping strategies.

*Product differentiation and new product introduction.* It is difficult to imagine a consumer goods industry in which producers do not seek a competitive advantage through new products or improvements to existing products and in which the effective communication of product offerings is not a significant challenge. Billions of dollars are spent on advertising, brand management, point-of-purchase displays, and packaging to communicate what defines a product and the array of benefits such that it delivers a good value even at premium prices. However, for many consumers, most of the efforts are wasted or may be misunderstood and misrepresented as a result of an overreliance on words and numbers as carriers of information to a population that processes them differently from other consumers. Many functionally illiterate consumers do not process words and numbers by incorporating them into abstracted representations of the products and their categories. They focus instead on a limited set of words that they process concretely, and they often base their decisions on heuristics that overemphasize single attributes and deemphasize or even ignore how new product attributes and unique characteristics deliver value at a more inclusive level. For functionally illiterate consumers, strategies that add features to existing brands (e.g., bleach alternatives in laundry detergents, whitening agents in toothpaste, vitamins in soft drinks) are unlikely to result in additions of the new attributes to the brands' preexisting quality and performance images. A more likely outcome is that these consumers will perceive the new product as a new product category (e.g., Tide Bleach, Colgate White Paste, Pepsi Vitamins) that may or may not be compatible with the brands' cultivated image. In contrast, brands may be associated with attributes that are not central to their value propositions, which could lead to brand confusion instead of the intended enhancement of a brand's core characteristics. Similar unintended outcomes are also possible when new brands are introduced or when brands are revitalized with changes to the fonts or colors used to represent them. Our research suggests that functionally illiterate consumers are more likely to ignore new brands. Moreover, if the new or revitalized brand undermines or replaces the preexisting brand as a pictorial element in its typical context and thus generates confusion, the resultant anxiety may be enough to trigger brand switching. Many functionally illiterate consumers are brand loyal because of pictographic recognition

**TABLE 3**  
**Illustrative Tactical Responses for Retailers and Producers**

	Concrete Reasoning		Pictographic Thinking			Decision Heuristics	Coping Strategies
	Value Trade-Off; Concretizing Tasks	Magnitude Estimation and Computing Difficulties	Sight Reading; Pictorial Recognition	Visualizes Attributes and Usage Situations	Visual Counting	Habitual Choice; Random Choice; Single-Attribute Decision Making	Dependence on Others; Self-Esteem Maintenance; Dissimulation
<b>Retailers</b>	Actual price presented on shelf clearly; shopping aids on retail shelf such as size graphics; visual depiction of price-size ratio on shelf.	Computation aids for total basket-price management (e.g., shopping carts with scanners); dollar and cents discounts rather than fraction-off discounts.	Maintain familiar store layout or ease transitions to new layout over time; familiar brand logos on store signage.	Pictorial dollar and cents displays; shelf displays matched to use (e.g., Sunday dinner); carts that suggest other ingredients and locations.	Fractions in pictorial form; dollar and cents discounting and displays of savings to replace fraction- and percentage-off displays.	Pictorial explanations of brand logo changes if producers do not provide them; pictorial depictions of value deals.	Family-friendly shopping environments; train personnel to recognize consumer needs and assist while preserving consumers' dignity.
<b>Producers</b>	Pictorial depiction of attribute information; pictorial depiction of expiration date.	Pictorial depiction of volume content in forms that do not change as does packaging.	Retain familiar logos or implement smooth transitions to new logos.	Pictorial depictions of unique attribute information on packages.	Value propositions in visual form; price-size savings in visual form.	Consumer education aids (through adult-education programs) that highlight brands and assist in teaching of safe food handling and balanced-diet needs.	Family-focused brand promotion programs using "stealth" and similar promotional programs based on word of mouth.

coupled with adequate brand performance. When company actions compromise pictographic recognition, functionally illiterate consumers may not search the shelf for new renditions of the same brand or for product information that signals that the brand has been recast for their benefit. They are more likely to seek out and purchase a competing pictorially recognizable brand.

These are not insurmountable problems, but they require that producers take into account that functionally illiterate consumers do not process word and number information in the same way as literate consumers do. For example, new attributes, such as bleaching agents in detergent or whitening agents in toothpaste, would benefit from pictorial representations of the benefits (e.g., before-and-after laundry depictions, a smile with dazzling white teeth), along with a simple-to-process word (or words) that represent the benefit. Culturally sensitive metaphors (e.g., pearls for white) can also be used pictorially to take advantage of well-learned associations that may be part of an oral tradition and transcend literacy and numeracy skills. Needless to say, the use of audiovisual media is important, because information processed as conversations can be used to generate a rich set of associations to which simple-to-process words can be linked.

An additional tendency of functionally illiterate consumers that should be managed in the introduction of product improvements and new products is consumers' reliance on assistance from family, friends, and store personnel in making purchase decisions. Without calling attention to consumer deficiencies, it may be possible to remind functionally literate helpers to recommend new and improved products to friends as a way of being helpful to others who may not be aware of the product's benefits. Assuming that people who help functionally illiterate consumers do so because they care, it seems plausible that emphasizing ways they can be even more helpful will be considered compatible with their motivations and thus likely to generate positive responses.

Finally, it is important for marketers to note functionally illiterate consumers' high level of advance planning and, therefore, to seek a place on their shopping list before they arrive at the store. Even in highly familiar environments, it is reasonable to expect that functionally illiterate consumers are somewhat more anxious than are literate consumers, because they focus their attention on recognizing preferred products and brands pictographically amidst the tens of thousands of stockkeeping units carried by the typical store. The cultivation of advance familiarity through television and radio advertising, pictorially rich billboards and posters, and even easy-to-comprehend direct mail pieces can enhance the likelihood of purchase.

*Avoiding product liability risks.* Consumer misuse of products is an ongoing concern among producers (at least in the litigious U.S. market), and emphasis is placed on both explaining the proper use of products to consumers and using warnings about the potential consequences of product misuse. However, our research suggests that many of companies' liability avoidance practices, such as detailed warnings and instructions in multiple languages on package labels, will not be effective with functionally illiterate con-

sumers. At best, functionally illiterate consumers may ignore such warnings because they cannot process them. Moreover, given functionally illiterate consumers' tendencies to fixate on single pieces of information and process them at a concrete level, it is not difficult to imagine circumstances in which liability avoidance practices may result in some consumers using the product in precisely the way that producers seek to avoid. For example, bottles of dishwashing liquid may contain claims such as "antistress" and "aromatherapy" in large, bold print, with descriptors and warnings such as "concentrated dish liquid" and "do not use with chlorine bleach" in small print. Furthermore, such bottles often have pictorial representations of flowers and other aromatic ingredients on the label but no equally visible and interpretable pictorial representation of the product's intended use. A functionally illiterate consumer could misinterpret a product label such as the one we have described such that he or she perceives the product as a freshener that can be used in settings that include doing laundry. If combined with chlorine bleach, such a product could produce potentially harmful fumes. The same could be said for over-the-counter medications that contain sweeteners (e.g., throat lozenges) and a printed warning "this is not candy" on the label. A functionally illiterate consumer who focuses on the sweetener content and the word "candy" could easily use the product inappropriately.

Such scenarios can be replicated in the thousands, if not millions, of households and business settings around the world in which functionally illiterate consumers live and work. If producers were to argue that their not knowing that such a high percentage of the population is low-literate should exonerate them, widespread availability of the National Adult Literacy Survey (Kirsch et al. 1993) has weakened that argument. Marketing managers need to be sensitive to functionally illiterate consumer predilections for concrete reasoning and pictographic thinking, and they should develop instructions and warnings that clearly communicate the products' intended uses and potential dangers from misuse. If functionally illiterate consumers can be counted on to make decisions based on concrete reasoning and pictographic thinking, it is good business to reach consumers through those information-processing mechanisms and to avoid product liability complications by doing so.

*Managing price promotions.* In 2002, consumer promotions in the United States totaled more than \$233 billion (*Promo* 2004), much of it devoted to coupons and other forms of price discounts designed to induce action at the point of purchase. However, our data suggest that for many functionally illiterate consumers, such promotions are confusing and may even cause them to switch away from the promoted brands. Among the functionally illiterate consumers we interviewed and observed, we found recurring and significant deficiencies in the ability to calculate accurate prices when coupons and percentage-off or fraction-off deals are used. In turn, these deficiencies engender anxiety and trigger avoidance strategies in some consumers. For the most part, consumer promotions are intended to enhance value to the consumer by reducing price and have been shown to result in category expansion and enhanced market

share for promoted brands (Neslin 2002). They have also been linked to increased sales for competing brands, a phenomenon that is not always well understood. Our research provides a possible factor that contributes to increased competitor sales, given that in some cases consumer promotions scare functionally illiterate consumers away from promoted brands and to competing brands. Our research also emphasizes that many consumers have difficulties in calculating or even accurately estimating the value enhancement that consumer promotions are intended to provide.

As with product liability concerns, careful attention to consumer predilections for concrete reasoning and pictographic thinking can lead to modes of presenting consumer promotions that will make them attractive instead of confusing and repulsive to functionally illiterate consumers. Our data suggest that functionally illiterate consumers are receptive to price deals but lack the numeracy skills to estimate value from price-discount calculations. However, if price and discounts are represented pictorially (e.g., pie charts), it seems reasonable to expect that more functionally illiterate consumers will grasp discount magnitudes quickly and accurately. Moreover, given the relatively low cost of printing customized labels, the adoption of graphical representations of price promotion information across markets and product categories is not an onerous task. Our data do not enable us to estimate the dollar value of increased effectiveness from such tactics, but if a large group of consumers respond to consumer promotions adversely because of literacy and numeracy deficiencies, the returns from aligning the presentation of consumer promotions to the skills of these consumers should be substantial.

*Consumer loyalty programs.* Research into the efficacy of consumer loyalty programs has shown that because of the expense of continually satisfying customers and concurrently meeting their expectations for preferential prices, such programs are often not profitable (e.g., Reinartz and Kumar 2000, 2002). Companies spend large amounts of money to keep track of customer purchases, to stock the products they favor, and to design consumer promotions to keep regular consumers satisfied; it is far from clear that such investments generate positive returns. This may be caused by consumer expectations that loyalty should be rewarded with lower prices, given that most other aspects of shopping environments are indistinguishable from those offered elsewhere. However, when it comes to functionally illiterate consumers, our research suggests that differentiation is possible through actions such as store signage designed to have pictorial information alongside word information, limited changes to store layout whenever possible, employee training in sensitivity to consumers who display literacy and numeracy deficiencies, and implementation of safeguards against functionally illiterate consumers' exploitation by unscrupulous employees. For example, the understanding revealed by Garvey's favorite cashier should not be left to chance but should be part of employee training in markets in which one in four customers may be functionally illiterate. Our research further suggests that functionally literate consumers who find safe and amenable shopping environments are loyal and are not likely to expect discounted prices for their patronage. Among functionally

illiterate consumers, there are many who greatly appreciate shopping environments that respond to their needs for pictorial information, help protect their interests and self-esteem, and seek to reduce the stress of shopping. Consequently, such consumers represent an untapped opportunity for at least some retailers to generate loyalty from a consumer group with documented spending power and whose behaviors suggest that they can be profitable.

The solutions that marketers devise for functionally illiterate consumers may sometimes coincide with solutions for various other groups, such as novice consumers, time-constrained consumers, consumers in developing countries, and consumers shopping in unfamiliar environments (e.g., foreign countries). There appears to be a strategic overlap between catering to functionally illiterate consumers and catering to other significant consumer segments in the global marketplace. However, the surface-level similarities between groups may hide deeper differences that marketers need to address, as our comparison groups illustrated.

### **Further Research and Limitations**

Our findings also point to some specific directions for further research. For example, pictographic thinking has implications for visual information processing. If attribute information that is presented pictorially is processed differently, it is likely to have unexplored effects on decision making and memory. In addition, the conditions under which functionally illiterate consumers use different types of decision heuristics and coping strategies need to be identified. Similar arguments can be made for concrete reasoning. In every area depicted in Figure 2, functionally illiterate consumers respond differently than do literate consumers, and their thinking and behavior needs to be better understood.

Cross-cultural research on functionally illiterate consumers would also be beneficial, given the large segments of immigrant and illegal-alien functionally illiterate consumers in the Canadian, European, and U.S. markets and the even greater numbers of functionally illiterate consumers in the global marketplace. Such research should be conducted in cultures that vary in overall levels of literacy and in their marketing infrastructure, given that functional illiteracy is context determined. Other notable cross-cultural research questions include: How do both low-literate buyers and sellers, not uncommon in developing contexts, negotiate the marketing environment? Are the emotional and coping phenomena observed in industrialized economies replicated; if not, what takes their place? Finally, the combined and overlapping effects of functional illiteracy and language deficiencies, such as those with ESL consumers, must be studied in order to better understand consumer behaviors in ethnically diverse markets.

At a managerial level, the effects of levels of functional literacy on several phenomena also merit additional research. For example, the effects of illiteracy on the processing of nutritional and health claims should be clearly understood. Equally important is the influence of functional illiteracy on consumer relationships with store personnel and on the efficacy of customer service. Functional literacy is taken for granted throughout much of the marketing management literature. The prescriptions of most extant

research need to be examined for their applicability to functionally illiterate consumers, with the objective of developing an enhanced understanding and more appropriate theories and practices.

Our study has several limitations that temper its implications. First, our functionally illiterate informants are likely to be different in level and type of motivation from ones who are not enrolled in adult-education programs. Respondents in our study are trying to overcome literacy and numeracy deficiencies, which suggests that they are highly motivated and possibly quite different from functionally illiterate consumers who are not seeking to become literate. This is another topic on which additional research is needed, though our experiences with accessing students enrolled in adult-education centers suggest that even greater difficulties are possible in trying to reach nonstudent samples.

Second, although we combined multiple research methods, their scope was limited by the inherent difficulty of

functionally illiterate consumers to deal with objective methodologies such as surveys and experiments. There is certainly more going on in the minds of functionally illiterate consumers than our interviews and observations can reveal, though we deliberately focus on behaviors and outcomes that we repeatedly observed. Whereas large-scale self-administered surveys remain unrealistic in studies of functionally illiterate consumers, the careful use of well-designed experiments and personally administered surveys may be worth exploring.

A final limitation pertains to the authors' tacit biases. Even with training and self-monitoring, we remain functionally literate consumers examining a world with which we cannot cognitively and emotionally relate. There is probably much that we missed about how functionally illiterate consumers navigate modern shopping environments that must be explored by further research.

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