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# Individual, Product Class, and Task-Related Factors in Consumer Information Processing

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Several propositions concerning the effect of individual, product class, and task-related factors on information-acquisition strategies were formulated and tested. Marked differences were found for subjects at different socio-economic levels. A new scheme for analyzing information-acquisition sequence data was developed and employed.

Efforts by government to modify the consumer information environment (truth in packaging, truth in lending, nutrient labeling) have been paralleled by the welcome adoption of an information-processing perspective by consumer researchers (Mitchell 1978). If greater understanding of consumer information processing is obtained, policy makers may make more appropriate research-based decisions than those guided by the "more is better" axiom. Accordingly, the study reported here embraces both theoretical and public policy concerns.

Arguably, the major research thrust in consumer information processing has been the experimental study of information acquisition. Jacoby, Chestnut, Weigl, and Fisher (1976) have identified three main elements: depth of search, sequence of search, and information content, which, they suggest, should be affected by individual and task environment variables. Depth of search refers to the quantity of information acquired.<sup>1</sup> Sequence of search refers to acquisition order, of which three broad patterns have been identified (Bettman and Jacoby 1976). When the preponderance of acquisition is of multiple items on successive brands, the sequences are termed brand processing (CPB). When, by contrast, sequences are dominated by acquisition of multiple items on successive attributes,

they are termed attribute processing (CPA). Feedback processing (CFP) consists of alternating brand and attribute sequences; there is also a catch-all, other, category. Information content refers to the specific items of information searched.

Although a variety of product classes, ranging from breakfast cereal to homes, has been studied using three different methodologies: eye movements (Russo and Doshier 1976; Russo and Rosen 1975), protocols (Lusier and Olshavsky 1979; Payne 1976; Svenson 1974), and information boards (Bettman and Jacoby 1976; Green, Mitchell, and Staelin 1977; Jacoby, Chestnut, and Fisher 1978; Jacoby, Chestnut, Weigl, and Fisher 1976; Jacoby, Szybillo, and Busato-Schach 1977; Payne 1976; Staelin and Payne 1976)<sup>2</sup>, little investigation of the relationships between individual and task environment variables and acquisition strategy has been reported, and even then the results are mixed.

Thus, Jacoby, Chestnut, and Fisher (1978) found that the individual variables, product-class experience, and product importance, influenced depth of search, and Green, Mitchell, and Staelin (1977) reported similar findings for product class experience. However, Bettman and Kakkar (1977) rejected a preferred-strategy hypothesis based on individual characteristics, finding instead that the information presentation format influenced both depth and sequence of search in support of a task-format hypothesis.

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<sup>1</sup> See Jacoby, Chestnut, Weigl, and Fisher (1976) for alternative measures.

<sup>2</sup> For an analysis of these methodologies, see Arch, Bettman, and Kakkar (1978), Payne and Ragsdale (1978), and Russo (1978).

In the Bettman and Kakkar (1977) study, housewife subjects made brand choices based on product information organized by brand, attribute, or in a matrix format. In the brand condition, information was presented in eleven single-page booklets, one per brand, arranged on a long table. In the attribute condition, information was presented in 13 single-page booklets, one per attribute, arranged similarly. For the matrix condition, an information display board similar to that used in this study was employed (see Method section). Bettman and Kakkar found that acquisition sequences reflected presentation format. Seventy-two percent of attribute condition sequences were attribute processing, whereas 84 percent of brand condition sequences were brand processing. In the matrix condition, brand processing accounted for 42 percent of all sequences; attribute processing 24 percent; 34 percent were classified as other. On the basis of these results, the preferred-strategy hypothesis was rejected and the task-format hypothesis accepted. However, an alternative explanation is possible.

Of special interest are the 28 percent attribute and 16 percent brand-condition subjects who, despite the strong task format manipulation, did not employ the format-driven sequence. Despite the considerable effort involved in processing contrariwise to the format, these subjects appear to have used a preferred strategy. Further, in the matrix condition where attribute, brand, and other sequences were equally useable, the skewed sequence distributions were not found.

An alternative explanation is that consumers do have preferred strategies, perhaps related to stable individual characteristics (e.g., demographic, psychological), but these strategies are modified by the choice task. The observed strategies, then, result from an interaction of the preferred strategies with individual/product class variables, such as perceived risk, specific purchase experience, brand loyalty, and product importance, and task-related factors, such as numbers of brands and attributes, format, and time pressure.<sup>3</sup>

The main purpose of this study was to identify a stable individual characteristic that could explain acquisition strategy, and to investigate its relative explanatory power with a selection of individual/product class and task-related variables.

## DEVELOPMENT OF HYPOTHESES

### Individual Variables

The attempt to identify preferred information acquisition strategies parallels governments' concern for special segments of consumers. Children and the elderly currently receive special attention, and if differ-

ential acquisition strategies were identified across some other stable characteristic, there could be important implications for public policy (Capon and Lutz 1976; 1979).

Accordingly, the individual variable selected for examination was socioeconomic status (SES)—low versus mid/high. In addition to their relative educational and financial deprivation, low SES members may be less competent information processors than those of higher SES. Thus, Farley (1964) suggests that the information-processing cost for low SES is higher, and consumer durables survey data confirm that they use less information than higher SES (Claxton, Frey, and Portis 1974; Thorelli 1971; Udell 1966).<sup>4</sup> Further, there is evidence that the achievement of the cognitive abilities termed formal reasoning (Inhelder and Piaget 1958), first evident in adolescence, but not universally achieved in adults, is positively related to education, a key element of SES. Thus, for a nontrivial choice requiring the processing of information, the acquisition strategy elements of depth, content, and sequence of search might be expected to vary across SES.

First, the evidence just cited suggests that mid/high SES members acquire more information than low SES members. Further, each group is likely to acquire information perceived as relevant. Although relevance is largely idiosyncratic, a function of individual needs and concerns, three information dimensions—price, independent testing-agency ratings (e.g., *Consumer Reports*), and brand name—have general utility. Interest in price information should be invariant across SES. Thus, budgetary considerations should make this information particularly important for low SES members; it should also be a key item for more accomplished mid/high SES processors. However, the processing ability and greater familiarity with magazines supplying ratings should make use of testing-agency data greater for mid/high SES members. Conversely, low SES members may reduce their processing cost by using brand name as an information chunk (Bettman 1979) to a greater extent than mid/high SES. French and Darden's (1973) study of packaged food purchases lends support for this proposition.

From the foregoing discussion, the following hypotheses were formulated:

<sup>3</sup> Jacoby et al's (1976) individual category thus becomes two categories: individual characteristics that are stable across product class and individual/product class characteristics that vary.

<sup>4</sup> Westbrook and Fornell (1979) and Newman and Staelin (1972) report conflicting results for education. In the former study, high versus low education discriminated between "objective" and "personal" shoppers who engaged in extensive and limited search, respectively. For the latter, although information use increased with education, at very high educational levels (advanced degree) information use dropped. Because time pressure (a possible explanation for the effect) was not a factor in this study; few subjects were expected to have advanced degrees; and neither the preponderance of the evidence nor the theoretical development suggested such an effect, the Newman and Staelin findings were discounted in hypothesis development.

- H1:** Mid/high SES members engage in greater depth of search than do low SES members.
- H2:** Mid/high SES members acquire more testing-agency ratings and less brand name information than low SES members, but equivalent price information.

Information acquisition sequence is most likely related to the choice process. If, for example, the choice is made by comparison of overall brand preferences developed from some linear compensatory model, then brand processing is implied. However, if such nonlinear choice models as lexicographic, additive-difference, or elimination by aspects are used, attribute processing is implied.<sup>5</sup> Although comparison of overall brand preferences appears to be conceptually the most simple choice method, and is congruent with the brand-format arrangement of product information in the consumer environment, operationally, it seems to be the most complex. Thus, equal amounts of information must be accessed on each brand, a series of preferences developed, preferences stored on early searched brands while later brands are searched, and, finally, a choice made among all brands. By contrast, the processing implied for nonlinear choice models, though seemingly conceptually more complex, should be simpler to implement. Thus, for given information quantities accessed, attribute processing implies fewer attribute evaluations than brand processing (Tversky 1969).<sup>6</sup> Further, attributes can be ignored if there is equivalence across brands, and some brands may be searched much less extensively than others if sequential elimination occurs. Finally, the severe memory load associated with compensatory choice models is not a factor.

There is no existing literature on the relationship between SES and acquisition sequence, and it is unclear, *ex ante*, what type of processing might be expected from each group under conditions where task format favors neither brand nor attribute processing. Thus, low SES members might be expected to cut their processing cost and information use by employing operationally simpler attribute processing. Alternatively, because attribute processing implies more complex choice strategies, low SES members may necessarily rely on conceptually simpler brand processing. Mid/high SES members are probably more able to employ attribute processing, but they may have less need to simplify choice in this manner and may, therefore, use brand processing. Accordingly, specific hypotheses were not developed for the impact of SES on acquisition sequence.

<sup>5</sup> See Bettman (1979) for a detailed discussion of alternative choice rules and implied acquisition sequences.

<sup>6</sup> For a two-brand,  $n$ -attribute choice in which all information is considered, brand processing requires  $2n$  attribute evaluations, whereas attribute processing requires  $n$ .

One individual/product class variable, perceived risk of purchase, and two task factors, level of information availability and memory aid, were selected for examination. As noted earlier, the hypotheses developed for these variables are competitive with the individual characteristic-based hypotheses.

### Individual/Product Class Variables

A long standing proposition in consumer research is that acquisition of information can reduce perceived risk of purchase (Bauer 1960; Cox 1967). Although recent research has produced both supportive (Jacoby 1975) and contrary evidence (Jacoby, Chestnut, and Fisher 1978), the hypotheses of positive relationships between information acquisition and perceived risk were, nevertheless, accepted for this study.<sup>7</sup> Further, high perceived risk implies the importance of acquiring relevant information. Although use of key price information was expected to be equally high for all levels of perceived risk (as it was across SES), one might expect testing-agency data to be more important and to be used more often at high-perceived risk. Although brand name is very often used for low-risk, nondurable products (Jacoby, Szybillo, and Busato-Schach 1977), less reliance on brand name information chunks is expected at high perceived risk and consequent high information acquisition.

High information acquisition at high-perceived risk implies increased task complexity. Because attribute processing can reduce task complexity, its use might increase at high perceived risk. Accordingly, the following hypotheses were formulated:

- H3:** High perceived risk leads to greater depth of search.
- H4:** The higher is perceived risk, the more testing-agency and the less brand name information is acquired. Price information use is invariant across perceived risk.
- H5:** Attribute processing is more frequent and brand processing less frequent at high perceived risk.

### Task Factors

Information availability (number of attributes) and presence/absence of memory aid are likely to impact depth and sequence of search. First, if more information is available per brand, consumers should find more that is of interest (Payne 1976). Further, this increased information acquisition should lead to a more

<sup>7</sup> Whereas gifts were used in the supportive study, where intuitively a good perceived risk manipulation might be expected, the contrary result was found with breakfast cereal, an unlikely candidate for a strong manipulation.

complex task and result in greater attribute processing. Second, if a memory aid is available, consumers can access more information at a given processing cost than if internal memory must be relied on. However, because a memory aid enables the memory load associated with compensatory strategies to be avoided, despite a greater depth of search, its presence may result in more brand processing. The following hypotheses were formulated:

- H6:** Increased information availability leads to greater depth of search.
- H7:** Attribute processing is more frequent at high information availability than when availability is low.
- H8:** Presence of a memory aid leads to greater depth of search.
- H9:** Brand processing is more frequent when a memory aid is present.

### Additional Objectives

In light of Bettman's (1979) complaint that existing measures of acquisition sequence are inadequate (Bettman and Jacoby 1976; Bettman and Kakkar 1977; Chestnut and Jacoby 1977; Payne 1976), the development of a new classification system was attempted in this study. Not only is the number of unclassifiable sequences uncomfortably high in existing systems,<sup>8</sup> they are based almost exclusively on transitions between adjacent items selected. Possible additional defining characteristics were, *ex ante*, completeness of search, the extent to which brands are searched at all, and order of selection of items.

A concern for sufficient depth of search to develop a new sequence system, and a desire to test the perceived risk and information content hypotheses, led to the choice of consumer durables for this study.

## METHOD

### Subjects

Subjects were chosen to represent low and mid/high levels of SES. However, examination of the literature revealed the use of a confusing list of individual SES variables, and social class scales that employ different composite variable sets (e.g., Carman 1965; Duncan 1961; Warner 1949). Although the SES variables most frequently employed were income, education, and occupation of household head, a two-factor index based just on income and education was constructed by developing six categories each, for the education and in-

come variables.<sup>9</sup> The six education categories, labeled one to six, respectively, were: less than high school, high school, some college, college degree, some graduate training, and graduate degree. The categories for income (family take-home per month) were: less than \$350, \$350–\$524, \$525–\$624, \$625–\$924, \$925–\$1399, and more than \$1400.<sup>10</sup> A subject's SES score was simply the sum of her education and income scores; the index had a minimum of two and a maximum of 12.

Twenty-four subjects were obtained for each SES category. Mid/high SES subjects were either members of the American Association of University Women, or administrative personnel at the Graduate School of Management, UCLA. Low SES subjects were either clients of a birth control center or members of a low-income community center. All subjects were literate, English-speaking women. The modal SES score for low SES subjects was four; only five subjects, three at five and two at six, scored more than the mode. The modal score for mid/high SES subjects was ten, and no subject scored less than eight. Mean ages of the groups were 38.3 and 39.0 years for mid/high and low SES groups, respectively.

### Apparatus

The information environments were simulated by three separate boards, one per product class, on which information was arranged in a matrix fashion. Each board contained six rows, representing brands, and 27 columns, representing attributes. At each brand/attribute intersection, the appropriate information was contained on 20 identical pieces of paper hung face down on a hook screwed into the board.

### Choice of Product Classes

Three product classes were chosen to represent different levels of perceived risk. From a consumer durables master list, rated by marketing students at a state university,<sup>11</sup> steam iron, toaster oven, and microwave oven were chosen to represent low, medium, and high-perceived risk, respectively. The steam iron and toaster oven were each different in perceived risk from the microwave oven at  $p < 0.01$  ( $t = 6.51$  and

<sup>9</sup> The following rationale was employed. First, the theoretical basis for the study employs income and education, but not occupation. Second, because the individual was the unit of analysis, use of a factor not directly related to the female subjects seemed unwarranted. Third, studies by Udell (1966), Thorelli (1971), and Claxton, Frey, and Portis (1974) identified different prepurchase information gathering patterns on the basis of income and education. Fourth, social class indices using occupation were developed when female employment was relatively low and, irrespective of the issue of identification of family head in two income families, may no longer be completely valid.

<sup>10</sup> The data were collected in the 1976–77 academic year.

<sup>11</sup> These students were mostly in their mid-20s.

<sup>8</sup> Bettman and Kakkar (1977) reported two studies in which "other" sequences were 34 and 36 percent in information board tasks.

## EXHIBIT 1

## INFORMATION DIMENSIONS EMPLOYED FOR THE PRODUCT CLASSES

Hold a 20-pound turkey? Provision for catching spills? <i>Consumer Reports</i> rating <sup>a</sup> Model number Brand name <sup>a</sup> Maximum time setting Cooking utensil restrictions Accuracy of timer for short settings Adequacy of recipe book Usable oven volume List price <sup>a</sup> Warranty terms—parts and labor End of cooking alarm?	<b>Microwave Oven</b> Warranty terms—magnetron Number of watts Reduced power setting? Amount of noise Defrosting capability? Speed of cooking Evenness of cooking Browning capability Need for service Safety considerations Exterior dimensions Amount of radiation leakage Complies with Federal Bureau of Radiological Health Standards?
Continuous clean interior? <i>Consumer Reports</i> rating <sup>a</sup> Crumb tray Warranty terms Toast selector? List price <sup>a</sup> Model number Manufacturer's name and address Thermostat settings Pilot light? Vertical clearance for baking Power consumption Brand name <sup>a</sup> Cord length	<b>Toaster Oven</b> Underwriters laboratory certification? Adjustable baking rack? Evenness of broiling Ease/method of converting from baking to broiling Temperature of door handles during cooking Glass window in door? Size—exterior dimensions Weight Removable door? Ease of removing doors Size—interior dimensions Shock hazard Evenness of baking
List price <sup>a</sup> Time to cool from high setting to lower setting Number of settings Number of watts Number of shots of steam over life Number of vents Brand name <sup>a</sup> Model number Weight Evenness of temperature distribution Need for distilled water <i>Consumer Reports</i> rating <sup>a</sup> Underwriters Laboratory Certificate Safety heel rest?	<b>Steam Iron</b> Rate of steaming Tank size Length of time iron will steam with one fill of water Tendency to spew Effectiveness of spray Burst of steam feature? Effectiveness of self-cleaning feature Type of soleplate Type of water level indicator Electrical hazards Electricity consumption Warranty terms Soleplate temperature indicator?

<sup>a</sup> Items employed in testing Hypotheses 2 and 4.

NOTE: Items in left-hand columns were employed in the 14-item condition.

5.16), but were different from each other at only  $p < 0.10$  ( $t = 1.75$ ).<sup>12</sup>

### Development of Information Display Boards

The information items for each brand in a product class were developed by a four-stage process. First, exhaustive lists of attributes used to describe the product classes were gathered from *Consumer Reports*, *Consumer Research Magazine*, advertisements in local newspapers, national magazines, mail order cat-

alogs, labels, packages, and in-store displays. Second, 27 attributes were selected for each product class by a process of combining attributes and eliminating redundant information. Third, brands were chosen from those that appeared in consumer magazines and were available in Los Angeles. Finally, the specific brand/attribute information items were gathered.

The 27 attributes were randomly arranged on the display boards, although brand name, price, and testing-agency data were placed randomly among the first 14 items. The procedure ensured that this critical information was available to subjects in all conditions. The attributes, as they appeared, are listed in Exhibit 1.

<sup>12</sup> Seven-point scale; steam iron ( $\bar{x} = 4.95$ ,  $s = 1.75$ ), toaster oven ( $\bar{x} = 4.41$ ,  $s = 1.73$ ), microwave oven ( $\bar{x} = 2.89$ ,  $s = 1.60$ ).

## Experimental Conditions

One information board was developed for each product class. Variation in available information was achieved by presenting either complete boards (27 attributes) or boards with the right hand side covered (14 attributes). For a memory aid, subjects were given a pen and pad of paper. Testing-agency data were taken from *Consumer Reports*. Each subject chose a brand in each product class; information availability and presence of memory aid was held constant across all three choices.

## Procedure

Mid/high SES subjects were tested at the Graduate School of Management, UCLA, and low SES subjects at either the community center or the birth control clinic. Thus, subjects were in a familiar and nonthreatening environment. All subjects were tested by the same experimenter and each was paid five dollars for participating. Furthermore, sufficient time was allowed to complete the tasks without pressure.

Subjects were tested in groups of one to three. On arrival they were told to imagine that they were shopping, in turn, for three new products, a steam iron, toaster oven, and microwave oven, and that they must choose one brand of each. They were asked to behave as they would for an actual purchase.

The nature of the information boards was explained to the subjects, who were told to take any information they liked, in any order, as much or as little as they liked, and were to stop only when they had made a choice.<sup>13</sup> Once viewed, each information item selected was to be spindled and could not be seen again. If information was required a second time, it had to be selected again. When a subject understood the task, she completed a short questionnaire that measured the perceived risk of a number of consumer durables. After each choice, the order of which was randomized across subjects, a short questionnaire relating to the decision was completed. When choices on all three product classes had been made, demographic information was obtained and subjects were debriefed. Analysis of postquestionnaires confirmed that all subjects understood the tasks and completed them in a conscientious manner.

## Analysis

*Depth of Search.* Depth of search was operationalized as total number of information items chosen. Hypotheses 1, 3, 6, and 8 were tested by a  $2 \times 2 \times 2 \times 3$  repeated measures ANOVA (SES  $\times$  information

availability  $\times$  memory aid  $\times$  perceived risk; perceived risk was the repeated dimension).

*Information Content.* The number of times the information items, brand name, testing-agency data, and price were chosen was determined for each condition and combined across availability of memory aid. Hypotheses 2 and 4 were tested by a  $2 \times 2 \times 3 \times 3$  repeated measures ANOVA [SES  $\times$  information availability  $\times$  perceived risk  $\times$  information content (brand name, testing-agency data, price); perceived risk and information content were repeated dimensions].

## Sequence of Search

The classification scheme developed by Bettman and Kakkar (1977) from Bettman and Jacoby (1976) was used to classify each of the acquisition sequences as attribute processing (CPA), brand processing (CPB), feedback processing (CFP), or other. Log linear analyses (Bishop, Feinberg, and Holland 1975) were performed to investigate the impact of SES, to test Hypotheses 7 and 9, and to examine the data for possible interaction effects. The reduction in chi-square (Goodman 1971; 1972) was used to assess the effect of each independent variable and the three pairwise interactions separately for each product class, as this was a repeated measures variable. Hypothesis 5 was tested by labeling each CPA strategy as "1," and each CPB, CFP, and other strategy as "0," and then employing the Cochran Q-test.

## RESULTS

### Manipulation Check

A perceived-risk manipulation check revealed that the risk levels of toaster oven and steam iron were indistinguishable. One way ANOVA produced  $F_{2,141} = 10.47$  ( $p < 0.01$ ), but Newman-Keuls analysis confirmed only the significant differences between microwave oven and both toaster oven and steam iron ( $q_{3,141} = 5.78$  and  $5.50$ ,  $p < 0.01$ ).<sup>14</sup>

Separate Analysis of the two SES groups confirmed the significant differences overall and between microwave oven and both toaster oven and steam iron for each group;  $p < 0.01$  and  $p < 0.10$  for each mid/high and low SES comparison, respectively. Despite lack of confirmation of the three pretest risk levels, analysis proceeded for each product class, although interpretation of perceived risk effects considered just two levels.

### Depth of Search

Depth of search was relatively high overall, averaging 24 percent of available information and reaching

<sup>13</sup> Subjects performed each task seated comfortably in front of an information board. When one task was completed they went to a different part of the room to another information board.

<sup>14</sup> Steam iron ( $\bar{x} = 4.13$ ,  $s = 2.16$ ), toaster oven ( $\bar{x} = 4.04$ ,  $s = 2.02$ ), microwave oven ( $\bar{x} = 2.44$ ,  $s = 1.94$ ).

**TABLE 1**  
DEPTH OF SEARCH: ANOVA SUMMARY

Source of variance	Degrees of freedom	SS	MS	F
Between subjects				
Socioeconomic status	1	7670.7	7670.7	10.49 <sup>a</sup>
Information availability	1	3916.6	3916.6	5.35 <sup>b</sup>
Memory aid	1	2508.3	2508.3	3.43 <sup>c</sup>
Information availability × memory aid	1	2871.1	2871.1	3.92 <sup>c</sup>
Error between	40	731.6	731.6	
Within subjects				
Perceived risk	2	714.3	375.1	4.6 <sup>b</sup>
Socioeconomic status × perceived risk	2	778.5	389.3	5.02 <sup>a</sup>
Error within	80	6208.5	77.6	

<sup>a</sup>  $p < 0.01$ . <sup>b</sup>  $p < 0.05$ . <sup>c</sup>  $p < 0.10$ .

85 percent for one subject. Significant results from the ANOVA used to test Hypotheses 1, 3, 6, and 8 are presented in Table 1.<sup>15</sup>

Depth of search was greater for mid/high SES subjects ( $p < 0.01$ ) and for high information availability ( $p < 0.05$ ), in support of Hypotheses 1 and 6, respectively. The significant perceived risk effect ( $p < 0.05$ ) was supportive of Hypothesis 3, as Newman-Keuls analysis revealed greater depth of search for high (microwave oven) than low perceived-risk products (toaster oven and steam iron,  $p < 0.05$ ). The weakly significant memory-aid effect ( $p < 0.10$ ) implied greater depth of search in the memory-aid absent condition, contrary to Hypothesis 8, whereas the weak information availability × memory-aid interaction ( $p < 0.10$ ) resulted from disproportionately high depth of search in the high availability, memory-aid absent condition. The significant SES × perceived risk interaction ( $p < 0.01$ ) resulted from disproportionately high depth of search for mid/high SES subjects in the high perceived-risk condition.<sup>16</sup>

<sup>15</sup> Values of  $\bar{x}$ ,  $s$ , and  $n$  for Hypothesis 1, 3, 6, and 8 are as follows: Hypothesis 1, high SES ( $\bar{x} = 36.8$ ,  $s = 21.9$ ,  $n = 72$ ), low SES ( $\bar{x} = 22.2$ ,  $s = 14.2$ ,  $n = 72$ ); Hypothesis 3, microwave oven ( $\bar{x} = 32.6$ ,  $s = 21.2$ ,  $n = 48$ ), steam iron ( $\bar{x} = 28.0$ ,  $s = 18.6$ ,  $n = 48$ ), toaster oven ( $\bar{x} = 27.7$ ,  $s = 19.5$ ,  $n = 48$ ); Hypothesis 6, 27 information items ( $\bar{x} = 34.7$ ,  $s = 23.3$ ,  $n = 72$ ), 14 information items ( $\bar{x} = 24.3$ ,  $s = 13.8$ ,  $n = 72$ ); Hypothesis 8, memory aid ( $\bar{x} = 25.3$ ,  $s = 14.1$ ,  $n = 72$ ), no memory aid ( $\bar{x} = 33.6$ ,  $s = 23.6$ ,  $n = 72$ ).

<sup>16</sup> Equivalent analyses for number of information dimensions selected revealed directly comparable results for information availability ( $p < 0.01$ ), memory aid ( $p < 0.05$ ), and information availability × memory aid interaction ( $p < 0.01$ ). However, dimension selection was equivalent across SES, the SES × perceived-risk interaction was not found and, despite marginal significance ( $p < 0.10$ ), a perceived-risk effect was uninterpretable due to equivalence of results for microwave and toaster ovens.

**TABLE 2**  
INFORMATION CONTENT: ANOVA SUMMARY

Source of variance	Degrees of freedom	SS	MS	F
Between subjects				
Socioeconomic status	1	281.94	281.94	19.16 <sup>a</sup>
Error between	44	647.59	14.72	
Within subjects				
Socioeconomic status × information type	2	200.56	100.28	10.95 <sup>a</sup>
Socioeconomic status × information type × information availability	2	132.03	66.02	7.21 <sup>a</sup>
Error within	88	805.86	9.16	

<sup>a</sup>  $p < 0.01$ .

## Information Content

Significant results from the ANOVA used to test Hypotheses 2 and 4 are presented in Table 2. The main SES effect ( $p < 0.01$ ) resulted from greater use of all three selected information items combined (brand name, testing-agency data, price) by mid/high SES subjects.<sup>17</sup> The SES × information type interaction, which provided a test of Hypothesis 2, was significant ( $p < 0.01$ ); however, although Newman-Keuls analysis revealed that testing-agency data were used more by mid/high SES as anticipated ( $p < 0.01$ ), not only did low SES not use brand names more, they used price information less ( $p < 0.05$ ).<sup>18</sup> The third order SES × information type × information availability interaction ( $p < 0.01$ ) resulted from differentially greater use of testing-agency data than brand name and price information by mid/high SES subjects in the low information availability condition, and relatively less use by low SES subjects.

Further, despite equivalence of use overall, brand name was selected much earlier in the sequence by low than by mid/high SES members. Thus, when subjects selecting at least one brand name within the first six and ten items, respectively, were compared across groups for each product separately, significant differences were found for each comparison ( $p < 0.01$ ). When allowance for greater depth of search by mid/high SES subjects was made by comparing their brand name selections at ten items against six for low SES subjects, the differences were still significant (steam iron and microwave oven,  $p < 0.01$ ; toaster oven,  $p < 0.05$ ).

<sup>17</sup> For the high SES group,  $\bar{x} = 3.82$ ,  $s = 2.1$ ,  $n = 216$ ; for the low SES group,  $\bar{x} = 2.21$ ,  $s = 1.77$ ,  $n = 216$ .

<sup>18</sup> The marginal data for testing Hypothesis 2 were: *Consumer Reports*, high SES ( $\bar{x} = 4.6$ ,  $s = 2.16$ ,  $n = 72$ ), low SES ( $\bar{x} = 1.28$ ,  $s = 1.82$ ,  $n = 72$ ); brand name, high SES ( $\bar{x} = 3.14$ ,  $s = 2.28$ ,  $n = 72$ ), low SES ( $\bar{x} = 3.41$ ,  $s = 1.88$ ,  $n = 72$ ); price, high SES ( $\bar{x} = 3.72$ ,  $s = 2.02$ ,  $n = 72$ ), low SES ( $\bar{x} = 2.21$ ,  $s = 1.54$ ,  $n = 72$ ).



An information type  $\times$  perceived-risk interaction was not observed and the testing-agency rating and brand name elements of Hypothesis 4 were rejected. By the same token, invariance of price use across perceived risk was supported.

### Sequence of Search: Classification by Existing Category Scheme

Across the three product classes, CPA strategies ranged from 40 to 52 percent of all strategies, CPB from 17 to 23 percent, CFP from four to eight percent, and other from 23 to 33 percent.<sup>19</sup>

Analysis of sequences revealed significant effects for SES in each product class (steam iron,  $p < 0.05$ ; toaster oven,  $p < 0.05$ ; microwave oven,  $p < 0.01$ ). However, whereas attribute processing was much more prevalent for the mid/high SES group, low SES subjects showed equivalent proclivity for both brand and other processing. None of the sequence hypotheses (5, 7, and 9) were supported, though a marginally significant effect ( $p < 0.10$ ) was obtained for information availability in the microwave oven condition, but in the wrong direction.

### Development of New Category Scheme

The new scheme is an extension of, rather than a replacement for, existing schemes. The three major categories from existing schemes—brand processing, attribute processing, and a mixed brand/attribute (feedback) processing (Bettman and Jacoby 1976; Bettman and Kakkar 1977)—remain as master categories. Further, the basic notion of four transition types is preserved (Chestnut and Jacoby 1977): Type 1 (same brand, same attribute), Type 2 (same brand, different attribute), Type 3 (different brand, same attribute) and Type 4 (different brand, different attribute). Two major enhancements have been made. First, each master category is subdivided into individual categories on the basis of the extent to which available brands are searched. Thus, the brand and attribute categories each consist of three individual categories, and the mixed brand/attribute category consists of two (2, 3, 4; 7, 8, 9; and 5, 6; respectively) delineated by the proportion of available brands that are searched.

The second enhancement is the development of subcategories based on the position of sequence elements in the acquisition sequence. When processing is mixed brand/attribute and attribute, and all brands are accessed (Categories 6 and 9), two main patterns can be identified: those where initial sequences are each brand accessed for one attribute (6B, 9A, 9B, 9C), and all others (6A, 9D). The single attribute (all brands)

sequence seems to be more consistent initial processing than other sequences.

Three distinct forms of later processing can be used to further subdivide the Category 9 sequences. In Category 9A, later processing is identical to the initial pattern for all attributes accessed, and is a methodical way of acquiring information. Later processing may, however, result in either the progressive reduction of numbers of brands searched as some are eliminated (9B), or a less consistent strategy where a reduction in brands searched is followed by an increase, as brands once excluded are later included again in the search (9C).

Final elements in the scheme are the development of simplified criteria for the master categories, and identification of a new random category (1), as shown in Exhibit 2.

Definitions of the master categories and subcategories are as follows:

#### *Random Processing Category*

*Category 1: Random Processing.* Search is characterized by a high percentage of Type 4 transitions. Information is not sought consistently on either a brand (Type 2), attribute (Type 3), or combination basis, but appears to be random. Sixty percent of Type 4 transitions is sufficient for designation as random processing.

#### *Brand Processing Categories*

The three brand processing categories consist mainly of Type 2 transitions, which are at least three times as frequent as those of Type 3. Allowable Type 4 transitions are set at 50 percent to capture all predominantly brand sequences, but rarely exceeded 20 percent in this study.

*Category 2: Primitive Brand Processing.* Few brands are searched and few items of information are selected. Subjects choose virtually the first brand searched and use little information. Criteria are a maximum of two brands and less than ten percent of available information.

*Category 3: Incomplete Brand Processing.* Information is obtained on at least half, but not all brands; no restriction on total amount of information.

*Category 4: Complete Brand Processing.* At least one information item is obtained for each brand; no restriction on total amount of information.

#### *Mixed Brand/Attribute Processing*

The two mixed brand/attribute processing categories consist of comparable (maximum ratio three times) amounts of Type 2 and Type 3 transitions. Allowable Type 4 transitions are set at 50 percent by the same

<sup>19</sup> For the criteria used, see Bettman and Kakkar (1977).

**EXHIBIT 2**  
**INFORMATION SEQUENCE CATEGORIES**

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Random processing

- Category 1: Random processing
- Type 4 transitions  $\geq 60\%$  of all transitions

Brand processing

- Type 2 transitions  $\geq 3$  times Type 3 transitions
- Type 4 transitions  $\leq 50\%$  of all transitions

Category 2: Primitive brand processing

- Brands searched  $\leq 2$
- Information items selected  $\leq 10$

Category 3: Incomplete brand processing

- Brands searched,  $X$ ;  $n/2 \leq X \leq n - 1$

Category 4: Complete brand processing

- Brands searched =  $n$

Mixed brand/attribute processing

- Type 2 transitions  $< 3$  times Type 3 transitions
- Type 3 transitions  $< 3$  times Type 2 transitions
- Type 4 transitions  $\leq 50\%$  of all transitions

Category 5: Incomplete mixed brand/attribute processing

- Brands searched,  $X$ ;  $n/2 \leq X \leq n - 1$

Category 6: Complete mixed brand/attribute processing

- Brands searched =  $n$

Subcategory 6B

- First  $n$  information items selected for all brands, one attribute

Subcategory 6A

- All other Category 6 sequences

Attribute processing

- Type 3 transitions  $\geq 3$  times type 2 transitions
- Type 4 transitions  $\leq 50\%$  of all transitions

Category 7: Primitive attribute processing

- Attributes searched = 1
- Information items selected  $\leq n$

Category 8: Incomplete attribute processing

- Brands searched,  $X$ ;  $n/2 \leq X \leq n - 1$

Category 9: Complete attribute processing

- Brands searched =  $n$

Subcategory 9A

- For each attribute selected, information obtained on  $n$  brands

Subcategory 9B

- For first attribute selected, information obtained on  $n$  brands

- For subsequent attributes, information obtained on  $n - x$  brands, where (a)  $x \geq 0$ , (b)  $x > 0$  at least once during the sequence, but  $x$  does not subsequently decrease

Subcategory 9C

- For first attribute selected, information obtained on  $n$  brands

- For subsequent attributes, information obtained on  $n - x$  brands, where (a)  $x \geq 0$ , (b)  $x > 0$  and subsequently decreases at least once in the sequence

Subcategory 9D

- All other Category 9 sequences

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NOTE:  $n$  = number of brands.

rationale as previously, but rarely exceeded 20 percent in this study.

*Category 5: Incomplete Mixed Brand/Attribute Processing.* Information is obtained for at least half, but not all, brands.

*Category 6: Complete Mixed Brand/Attribute Processing.* At least one item of information is obtained for each brand. Two subcategories are defined on the basis of acquisition sequence. If search commences by selection of information for all brands on one attribute,

the sequence is Subcategory 6B. All other sequences are classified Subcategory 6A.

**Attribute Processing Categories**

Type 3 transitions are three times as frequent as those of Type 2, and allowable Type 4 transitions are 50 percent.

*Category 7: Primitive Attribute Processing.* Transitions are exclusively Type 3, as only one attribute is searched for an information item maximum equal to the number of brands.

*Category 8: Incomplete Attribute Processing.* The logical equivalent to Category 3, Category 8, involves the search of at least half, but not all brands, and at least two attributes.

*Category 9: Complete Attribute Processing.* Information is obtained on all brands. In Categories 9A and 9B, information is obtained for each brand under consideration for each attribute searched. In Category 9A, all brands are searched, whereas for Category 9B, the number of brands is progressively reduced. Sequences in Category 9C initially resemble Category 9B, but the number of brands searched later increases. All remaining sequences are designated Category 9D.

Two groupings of the individual categories were developed to provide further insight into acquisition behavior. First, two groups differing in completeness of search were formed: high level strategies (Categories 4, 6, and 9) where each brand was searched at least once, and low level strategies (Categories 1, 2, 3, 5, 7, and 8) where at least one brand was not searched, or the sequence was random. Second, Category 9 was partitioned into systematic and unsystematic groups. Systematic strategies were those where, for each attribute searched, information was obtained on each brand or on a progressively reduced number of brands (Subcategories 9A and 9B). If, however, the number of brands both decreased and increased, or if a predominant pattern did not emerge (Subcategories 9C and 9D), search was deemed unsystematic.

Although not formulated before development of the new sequence system, it was anticipated that low SES subjects would employ low level strategies more frequently and high level strategies less frequently than mid/high SES subjects. Further, mid/high SES subjects would be more likely to use systematic attribute strategies than low SES subjects. No similar conjectures were made for the individual/product class and task variables.

### Classification Using New Category Scheme

Acquisition sequence frequencies are displayed in Table 3. Each sequence was classified into one category, and no sequences were unclassifiable. Two judges classifying independently obtained 94 percent agreement; differences were resolved by discussion.<sup>20</sup>

Employing the master sequence classification, CPA strategies ranged from 40 to 52 percent and CPB from 21 to 28 percent across product classes, results that are comparable with the previous analysis. However, mixed brand/attribute processing ranged from 15 to 27 percent, a significant increase from CFP strategies, whereas random processing was between six and ten

**TABLE 3**  
SEQUENCE FREQUENCY BY CATEGORY

Category	Steam Iron	Toaster Oven	Microwave Oven
Random processing	4	3	5
Category 1	4	3	5
Brand processing	11	13	9
Category 2	2	2	2
Category 3	6	7	3
Category 4	3	4	4
Mixed brand/attribute processing	7	9	13
Category 5	2	3	3
Category 6	5	6	10
Subcategory 6A	2	3	6
Subcategory 6B	3	3	4
Attribute processing	26	23	21
Category 7	2	1	2
Category 8	2	1	0
Category 9	22	21	19
Subcategory 9A	3	3	5
Subcategory 9B	12	11	9
Subcategory 9C	3	6	5
Subcategory 9D	4	1	—

percent. High level strategies ranged from 62 to 69 percent of all strategies, whereas, of the 40 to 48 percent complete attribute processing strategies, between 67 and 74 percent involved systematic processing.

### New Sequence Analysis

Marked differences were found between the mid/high and low SES groups, as previously. When the sequences were grouped into the master categories of random, brand, mixed brand/attribute, and attribute, significant effects were found for each product class (steam iron,  $p < 0.01$ ; toaster oven,  $p < 0.05$ ; microwave oven,  $p < 0.01$ )—the result of higher levels of brand and random processing by low SES subjects and more attribute processing by mid/high SES.<sup>21</sup> Mid/high SES subjects also used high level strategies significantly more than did low SES subjects (steam iron,  $p < 0.01$ ; toaster oven,  $p < 0.01$ ; microwave oven,  $p < 0.01$ ).

No other main or interaction effects were found for master category analysis, but there was disproportionately greater use of high-level strategies in the high-information availability, high risk, memory aid present condition ( $p < 0.05$ ). Further, marginally significant memory aid  $\times$  SES interaction effects were found for both low-risk products (steam iron,  $p < 0.10$ ; toaster oven,  $p < 0.10$ )—the result of slightly greater high-level strategy use by low SES subjects in the memory

<sup>20</sup> The category scheme was developed by the first author who also classified the sequences. The sequences were independently classified by the second author for reliability.

<sup>21</sup> The raw  $n$ 's for random, brand, brand/attribute, and attribute processing aggregated across product class were, respectively, high SES 0, 5, 14, 53; low SES 12, 28, 15, 17.

aid present condition and slightly less use by high SES subjects when memory aid was absent. Analysis of the complete attribute processing strategies revealed no significant effects.

## DISCUSSION

The major finding from this study was that mid/high SES subjects seemed to be more accomplished information processors than low SES subjects. They sought more information in general, especially under high perceived-risk conditions, and more testing agency and price information, in particular. They tended to access at least one information item for each brand (high level strategies) and to handle choice complexity by employing conceptually complex, but operationally simpler, attribute processing strategies.

Low SES subjects, on the other hand, handled their information environments by using less information in total and tended to ignore completely some brand alternatives. They tended not to use the conceptually more difficult attribute-processing strategies; their processing was either conceptually simpler, yet operationally more difficult, brand processing, or was classified as random. Finally, they used less price and testing-agency data, but used brand name in a manner that suggests that it guided search, whereas for mid/high SES it seemed to be just another information item.<sup>22</sup>

The more important theoretical question raised by these results is why such information processing differences were found across SES. The tendency of the low SES subjects to ignore some brands and to access information randomly suggests that their processing ability was suboptimal. This finding is congruent with the results from Capon and Kuhn's (1979) study that showed subjects with low education levels to be less able than more highly-educated subjects to complete successfully a simple proportional reasoning task that required the calculation of unit prices for grocery products, given price, and quantity information. Further, proportional reasoning is one of the constellation of formal reasoning abilities (Inhelder and Piaget 1958) that suggests that information-acquisition behavior may be related to level of intellectual competence. Such a relationship should, however, be considered tentative; a study is now in progress to investigate this relationship directly.

<sup>22</sup> A possible rival explanation for the SES differences is a motivational one, that low SES subjects felt less involved in the experimental task than did mid/high SES subjects, and that this somehow affected their information-acquisition behavior. However, as the procedure was carefully designed to cause both groups to be highly motivated and, as from the post-task analysis all subjects were found to have completed their tasks conscientiously, there is little evidence to support it. The issue of task involvement is, nevertheless, a critical one and should be a major procedural consideration in any replication study.

The public policy issues raised by these results are twofold. The finding of preferred attribute processing by mid/high SES adds weight to the arguments of those who favor matrix presentations of consumer information (Bettman 1975; Russo, Krieser, and Miyashita 1975; Wilkie 1975). However, such an innovation would appear to be of little consequence for those low SES consumers who process by brand, or randomly, and whose purchasing behavior is perhaps of greater concern to policy makers. Indeed, the policy options for low SES consumers appear to present a catch-22 situation. Assume, for example, a goal of more extensive information acquisition, notably by consideration at some level of all available brand alternatives. If cognitive capacity limits do exist, then consumer education programs to achieve such high-level strategies may succeed only at the expense of less depth of search per alternative. Alternatively, it may be possible to teach brand and random processors to use operationally simpler nonlinear choice strategies and to process information by attribute (Wright 1975). However, as most consumer information is presented by brand, the ability to use these newly acquired strategies would be considerably impaired.

The finding of strong SES effects is evidence for the existence of preferred strategies as a factor in explaining information-processing behavior. Whereas, Bettman and Kakkar's (1977) strong task format manipulation was the major determinant of information-acquisition strategy, here SES was the major factor. Although perceived risk and information availability (H3 and H6) and memory aid influenced depth of search, these variables had little influence on information content or acquisition sequence.<sup>23</sup> Thus, from a preferred strategy perspective, it seems that depth of search is the strategy element most subject to modification by individual/product class and task factors, and further, that the individual/product class and task environment manipulations were relatively weak.

It should not be inferred from these results, however, that the individual/product class and task factors employed could not provide more powerful manipulations that could affect acquisition sequence. Thus, the range of perceived risk might have been greater had a frequently purchased consumer nondurable been employed for low risk, and the memory aid manipulation would have been stronger had subjects been required to use it. Finally, both 14 and 27 attributes represent comparatively high information availability, and fewer items might have induced different processing.

<sup>23</sup> The wrong direction memory aid effect suggests that the equal processing cost hypothesis is false. Greater memory aid efficiency combined with a satisficing or optimizing amount of information processing would explain the finding of greater depth of search in the memory aid absent condition. Greater use of high level sequence strategies under conditions of high risk and high information availability supports the hypothesis that memory aid leads to more efficient strategies.

In summary, these results should be seen, not in opposition to, but as complementary with, Bettman and Kakkar's (1977) findings. Their strong task manipulation produced strong task effects, whereas, in this study, a strong individual characteristic manipulation produced strong individual effects. The interesting question that remains is the nature of the boundary conditions at which individual-characteristic based preferred-sequence strategies give way to ones dominated by individual/product class and task factors.

Two other points should be noted. First, the new system for categorizing acquisition sequence enables a more holistic description of sequences to be developed than was possible from existing schemes. In this study at least, its use provided interesting additional insight into the data. Second, by presenting an ideal information environment seldom realized in practice, this study lacks a degree of external validity—as does all research in which the information-board methodology is employed in a straightforward manner. However, the results for SES underscore the danger of using, as have many extant studies, college students for this type of research. Because students are probably more competent information processors than the general population, results from such studies may have little generality.

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## REFERENCES

- Arch, David D., Bettman, James R., and Kakkar, Pradeep (1978), "Subjects' Information Processing in Information Display Board Studies," in *Advances in Consumer Research*, ed. H. Keith Hunt, Ann Arbor: Association for Consumer Research, 555–60.
- Bauer, Raymond A. (1960), "Consumer Behavior as Risk Taking," in *Dynamic Marketing for a Changing World*, ed. R. S. Hancock, Chicago: American Marketing Association, 389–98.
- Bettman, James R. (1975), "Issues in Designing Consumer Information Environments," *Journal of Consumer Research*, 2, 169–77.
- (1979), *An Information Processing Theory of Consumer Choice*, Reading, MA: Addison-Wesley.
- , and Jacoby, Jacob (1976), "Patterns of Processing in Consumer Information Acquisition," in *Advances in Consumer Research*, ed. Beverlee B. Anderson, Association for Consumer Research, 3, 315–20.
- , and Kakkar, Pradeep (1977), "Effects of Information Presentation Format on Consumer Information Acquisition Strategies," *Journal of Consumer Research*, 3, 233–40.
- Bishop, Y. M. M., Feinberg, S. E., and Holland, F. W. (1975), *Discrete Multivariate Analysis*, Cambridge, MA: MIT Press.
- Capon, Noel, and Kuhn, Deanna (1979), "Logical Reasoning in the Supermarket: Adult Females' Use of a Proportional Reasoning Strategy in an Everyday Context," *Developmental Psychology*, 15, 450–2.
- , and Lutz, Richard J. (1976), "Consumer Information and the Black Consumer: An Exploratory Study," in *Issues in Black Economic Development*, eds. Benjamin F. Bobo and Alfred E. Osborne, Jr., Lexington, MA: Lexington Books, 125–66.
- , and Lutz, Richard J. (1979), "A Model and Methodology for the Development of Consumer Information Programs," *Journal of Marketing*, 43, 58–67.
- Carman, James M. (1965), "The Application of Social Class in Market Segmentation," Berkeley, CA: IBER Special Publications, University of California.
- Chestnut, Robert W., and Jacoby, Jacob (1977), "Consumer Information Processing: Emerging Theory and Findings," in *Foundations of Consumer and Industrial Buying Behavior*, eds. Arch G. Woodside, Peter D. Bennett, and Jagdish N. Sheth, New York: American Elsevier, 119–33.
- Claxton, John D., Frey, Joseph N., and Portis, Bernard (1974), "A Taxonomy of Pre-Purchase Information Gathering Patterns," *Journal of Consumer Research*, 1, 35–42.
- Cox, Donald F. (1967), "The Influence of Cognitive Needs and Styles on Information Handling in Making Product Evaluations," in *Risk Taking and Information Handling in Consumer Behavior*, ed. Donald F. Cox, Boston: Harvard University Press, 370–93.
- Duncan, Otis D. (1961), "A Socioeconomic Index of All Occupations," in *Occupations and Social Status*, ed. Reiss, A. J., Jr., New York: The Free Press.
- Farley, John U. (1964), "Brand Loyalty and the Economics of Information," *Journal of Business*, 37, 370–81.
- French, Warren A., and Darden, William R. (1973), "The Fair Packaging and Labelling Act: An Assessment," *Business Ideas and Facts*, 6, 2–8.
- Goodman, L. A. (1971), "The Analysis of Multidimensional Contingency Tables: Stepwise Procedures and Direct Estimation Methods for Building Models for Multiple Classifications," *Technometrics*, 13, 33–61.
- (1972), "A Modified Multiple Regression Approach to the Analysis of Dichotomous Variables," *American Sociological Review*, 37, 28–46.
- Green, Richard, Mitchell, Andrew A., and Staelin, Richard (1977), "Longitudinal Decision Studies Using a Process Approach: Some Results from a Preliminary Experiment," in *Contemporary Marketing Thought*, eds. Barnett A. Greenberg and Danny Bellenger, Chicago: American Marketing Association, 401–66.
- Inhelder, Barbel, and Piaget, Jean (1958), *The Growth of Logical Thinking from Childhood to Adolescence*, New York: Basic Books.
- Jacoby, Jacob (1975), "Perspectives on a Consumer Information Processing Research Program," *Communication Research*, 2, 203–15.
- , Chestnut, Robert W., and Fisher, William A. (1978), "A Behavioral Process Approach in Nondurable Purchasing," *Journal of Marketing Research*, 15, 532–44.
- , Chestnut, Robert W., Weigl, Karl C., and Fisher, William A. (1976), "Pre-Purchase Information Acquisition: Description of a Process Methodology, Research Paradigm, and Pilot Investigation," in *Advances in Consumer Research*, ed. Beverlee B. Anderson, 3, 306–14.
- , Szybillo, George J., and Busato-Schach, Jacqueline (1977), "Information Acquisition Behavior in Brand

- Choice Situations," *Journal of Consumer Research*, 3, 209-16.
- Lussier, Dennis A., and Olshavsky, Richard W. (1979), "Task Complexity and Contingent Processing in Brand Choice," *Journal of Consumer Research*, 6, 156-65.
- Mitchell, Andrew A. (1978), "An Information Processing View of Consumer Behavior," in *Research Frontiers in Marketing: Dialogues and Directions*, ed. Subhash C. Jain, Chicago: American Marketing Association, 188-97.
- Newman, Joseph P., and Staelin, Richard (1972), "Pre-Purchase Information Seeking for New Cars and Major Household Appliances," *Journal of Marketing Research*, 9, 249-57.
- Payne, John W. (1976), "Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis," *Organizational Behavior and Human Performance*, 16, 366-87.
- , and Ragsdale, E. K. Easton (1978), "Verbal Protocols and Direct Observation of Supermarket Shopping Behavior: Some Findings and a Discussion of Methods," in *Advances in Consumer Research*, ed. H. Keith Hunt, Ann Arbor, MI: Association for Consumer Research, 571-7.
- Russo, J. Edward (1978), "Eye Fixations Can Save the World: A Critical Evaluation and a Comparison Between Eye Fixations and Other Information Processing Methodologies," in *Advances in Consumer Research*, ed. H. Keith Hunt, Ann Arbor, MI: Association for Consumer Research, 561-70.
- , and Doshier, Barbara Anne (1976), "An Information Processing Analysis of Binary Choice," unpublished manuscript, Carnegie-Mellon University.
- , and Rosen, Larry D. (1975), "An Eye Fixation Analysis of Multi-Alternative Choice," *Memory and Cognition*, 3, 267-76.
- , Kreiser, Gene, and Miyashita, Sally (1975), "An Effective Display of Unit Price Information," *Journal of Marketing*, 38, 11-9.
- Staelin, Richard, and Payne, John W., (1976), "Studies of the Information Seeking Behavior of Consumers," in *Cognition and Social Behavior*, ed. John S. Carroll and John W. Payne, Hillsdale, NJ: Lawrence Erlbaum Associates, 185-202.
- Svenson, Ola (1974), "Coded Think Aloud Protocols Obtained When Making a Choice to Purchase One of Several Hypothetically Offered Houses: Some Examples," unpublished paper, University of Stockholm.
- Thorelli, Hans (1971), "Concentration of Information Power Among Consumers," *Journal of Marketing Research*, 8, 427-32.
- Tversky, Amos (1969), "Intransitivity of Preferences," *Psychological Review*, 76, 31-48.
- Udell, Jon G. (1966), "Prepurchase Behavior of Buyers of Small Electrical Appliances," *Journal of Marketing*, 30, 50-2.
- Warner, Lloyd W. (1949), *Social Class in America*, New York: Harper Row.
- Westbrook, Robert A., and Fornell, Claes (1979), "Patterns of Information Source Usage Among Durable Goods Buyers," *Journal of Marketing Research*, 16, 303-12.
- Wilkie, William (1975), *How Consumers Use Product Information: An Assessment of Research in Relation to Public Policy Needs*, Washington, DC: U.S. Government Printing Office.
- Wright, Peter L. (1975), "Consumer Choice Strategies: Simplifying vs. Optimizing," *Journal of Marketing Research*, 11, 60-7.