

## A REVIEW OF BUYER BEHAVIOR\*

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Post-war advances in technology have changed the concept of marketing management considerably. The core of this change is the shift of emphasis from the firm to the buyer. In this survey article, the author reviews all the important approaches to understanding buying behavior and provides an up-to-date bibliography.

Two important issues emerge from the review. First, the existing variety of formulations resembles the variety of responses of seven blind men touching different parts of an elephant and making inferences about the animal which necessarily differ from, and occasionally contradict, one another. Second, the theory which attempts to explain the observed phenomenon of buying behavior and the quantitative techniques which provide adequate definitions and measurements have been developed independently of each other to the detriment of the maturity of the discipline.

Since World War II, there has been a marked shift in emphasis on competitive weapons used by companies in a given market. For example, product innovation has been gaining steady significance in marketing strategy [284]. The post-war emphasis on non-price competitive weapons such as product, promotion and service has tended, on the one hand, to bring out the divorce between marketing and the economic theory of the firm, and on the other hand, has forced the marketing manager to understand more fully the role played by the buyer in the marketplace [242].

Several post-war developments have been responsible for the increased need for research in buying behavior [167]. The first is the rapid adoption of technological breakthroughs either to maintain market share or to gain entry into a market by flooding it with new products. The magnitude of this adoption is indicated by the fact that more than 6000 new products every year are introduced in the grocery trade alone [26]. On the other hand, it is estimated that as high as 80 percent of the new products fail because of *non-acceptance* by the buyer [35].

Second, the ultramicro level of specialization and division of labor in the marketing activity have raised problems of coordination and control [235]. A unified theory of buyer behavior may help to coordinate and control the specialized units by reducing the differences in goals and perceptions and also by providing a common language of communication [235, Chapters 5 and 6].

Third, the advance in technology has enabled the marketing manager to collect, compile and analyze marketing information particularly related to buying behavior in a more efficient manner. Specifically, data processing machines and the computer have immensely increased his capacity to simultaneously take into account a large number of relevant variables; complexity of buying behavior is only now being seen in its true perspective.

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Fourth, although information is now available to the marketing manager, it is expensive. In part, the higher cost is the initial expenditure of providing the information in concise, storable and reusable form. More importantly, however, the higher cost reflects the fact that the information is probably more pertinent, reliable and valid because of the adoption of sophisticated sampling procedures, better training of interviewers, and the recent emphasis on individual households as units of information and analysis. The fact is that information is costly today. To justify the cost, it then becomes important that information-buying be goal-directed.

Lastly, with the realization of a complex environment within which the marketing manager makes his decisions, a formal approach to his decision-making process has been attempted, particularly in the post-war period. Simon [311] shows that this has led to the adoption of "modern" tools of decision-making such as operations research, mathematical statistics, computer simulation and heuristic problem-solving. The availability and utilization of the newer techniques and of information have enabled the marketing manager to comprehend and cope with the complexity of buying behavior. Thus, instead of taking cover behind "ceteris paribus" which is more appropriate in a bivariate experimental design, he is now able to take a multivariate approach more suited to the real world [300]. However, excursion in multivariate complexity presumes a formal understanding of the buyer.

During the past two decades numerous formulations have been presented in an effort to explain consumer behavior. In fact, the field has grown to such an extent that separate courses are offered at several business schools [240]. In addition, several books have recently been published [243], [272], [51], two reviews have appeared in *Annual Review of Psychology* [149], [340], one in *Journal of Business* [241], and Anastasi [6] reserves three chapters in her book on applied psychology. The wide attention has also brought with it diverse approaches and theoretical formulations.

#### A Typology of Theoretical Concepts

To understand the potential and limitations of various approaches, we will borrow a classification scheme provided by Coan [72] for theoretical concepts in psychology. His typology is based upon a very good synthesis of diverse opinions of philosophers regarding what constitutes a scientific theory. It is futile to argue that any one mode of classification is intrinsically more valid than another. Rather, the choice must be based upon the issues which face a discipline at the present stage of its history. The infancy stage of today's marketing as a mature science suggests that the factual content or "observational" status of various concepts may be the most relevant mode to classify concepts put forward in buying behavior.

Figure 1 summarizes the typology provided by Coan based upon the observational status of a concept. Before we explain each classification, two other notions from philosophy of science are relevant here. The first one is Margeneau's assertion that a theory must possess two planes, the Perceptual Plane which provides

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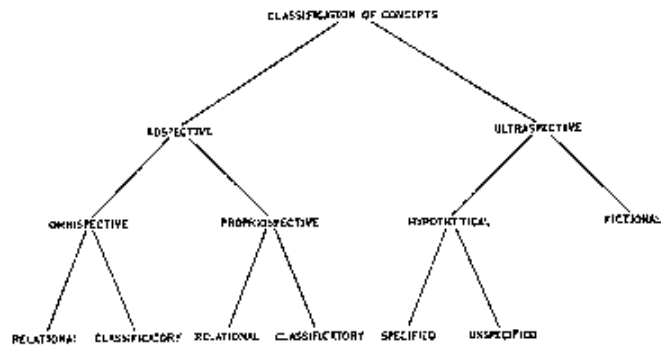


FIGURE 1. A conceptual scheme for classifying concepts based on their observational status.

observable data and the Conceptual Plane which provides a set of constructs [236]. If a concept consists of only the constructs in the C plane, it is a model and not a theory [332]. The second notion is the classification of constructs in the C plane into hypothetical constructs and intervening variables by MacCorquodale and Meehl [230] in their important and controversial paper. The distinction between the two types of constructs rests on the premise that the intervening variables are isomorphic transformations of observable data like an index while the hypothetical constructs, in addition to such transformation, carry some 'surplus meaning' which goes beyond the factual content [273]. In terms of the general psychological paradigm, *S-O-R* (Stimulus-Organism-Response), [366], the intervening variables are indexes of *S* and *R* and the hypothetical constructs define the organism.

An *adspective* concept is one definable in terms of observed entities, events or relations. An *ultraspective* concept would not be so definable although it might consist of components that are. We may say that an *adspective* concept is an intervening variable and an *ultraspective* concept is a hypothetical construct. The latter, therefore, contains surplus meaning. The *ultraspective* concepts are further classified as *hypothetical* and *fictional* *ultraspective* concepts. In the hypothetical concept, the surplus factual content refers to entities, events or relations that are regarded as potentially observable whether or not the means of observation are available. The *fictional* concept, on the other hand, commonly assumes an analogical form in that the things to which reference is made have been observed in a different realm and provide an understanding by way of a comparison. Hypothetical concepts are further classified as *specified* or *unspecified* hypothetical concepts. A *specified* hypothetical concept is one for which the definition contains a relatively specific statement of the properties that must be observed in the *P* plane to provide conformation. In the case of *unspecified* concept there would be a minimal indication of these properties.

The subclassification of adjectival concepts depends on judgments regarding the nature of observation which are themselves diverse according to Hempel [158]. However, a common approach is one represented by such elastic terms as public versus private, objective versus subjective, behavioral versus experiential, etc. The *omnispective* concept is as one whose observational content is conceptualized as public or overt; and the *propriospective* concept as one whose observation is regarded as subjective only. Each of the adjectival concepts is further classified as either *classifactory* or *relational*. The *classifactory* concepts are those for which the defining operations are confined to abstraction and classification of things and events. The *relational concept* is one in which the defining operations also introduce a relation or conjoint function involving two or more of the things or events.

Classification of the Current Research

Table 1 is an attempt to label the broad areas of research in buying behavior as one or the other type of concepts depending upon how closely the particular area of research has anchored itself to the observable data of the P plane. On the adjectival-ultraspective continuum, operations research is closest to the P plane and motivation research is farthest. Other formulations fall in between operations research and motivation research. Two points must be emphasized about the classification. First, it is not unique and a researcher working in one of the areas may object to classifying his concept the way it is done here. What is attempted here is a relative positioning of the concepts vis-a-vis other concepts on

TABLE 1  
A Classifactory Scheme of Existing Research on Buyer Behavior

Adjectival			
Omnispective		Propriospective	
Relational	Classifactory	Relational	Classifactory
a. Operations Research	d. Market Segmentation	g. Attitude and Preferences	h. Consumer Anticipations or Expectations
b. Experimentation	e. Class Theories		
c. Simulation	f. Reference Group Theories		
Ultraspective			
Hypothetical		Fictional	
Specified	Unspecified	n. Motivation Research & Psychoanalytic Approaches	
i. Perception	k. Cognitive Dissonance Theory		
j. Learning Theory	l. Risk Taking m. Lewin's Field Theory		



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the adspective-ultraspective continuum based on the aggregate attempt in each of the areas. Second, several areas of research have attempted to combine the ultraspective aspect with the adspective aspect. These are hard to classify. For example, experimentation and cognitive dissonance have been merged by several researchers. Similarly, learning theory and operations research have been pulled together. We will discuss individual investigations in one or the other classification depending upon where they have proved more beneficial.

It will be noticed that what is commonly referred to as theoretical research primarily falls in the ultraspective category and what is commonly referred to as empirical research falls in the adspective category.

#### Relational Omnisperspective Concepts

On the observation continuum, this classification is closest to the Perceptual Plane. Also, it contains the functional or associative relations of the classified observations. Under this category, we include (i) operations research, (ii) experimentation, and (iii) simulation.

##### *Operations Research*

Methods of operations research have been extensively applied to help the marketing manager [21], [62], [91], [135]. The reader is referred to Howard [165], Aashen [9], Baumol [30], and recently Starr [317] and Lazer [214] to obtain critical evaluations of the potential that the discipline can offer to marketing management. The contribution of operations research to buying behavior, however, has been recent. The major emphasis has been on the analysis of brand loyalty and brand switching behavior of the consumer.

The interest in repeat brand purchase began immediately after World War II. Barton [20], Patterson and McNally [277], Churchill [68] and Womer [362] were among the first to measure repeat purchases of a brand utilizing purchase records of fixed panels of households. However, the recent development of quantitative techniques to measure brand switching was strongly influenced by a series of articles written by Brown [54] and followed up by Cunningham [84], [85]. The latter also attempted to measure store loyalty and its relationship to brand loyalty [86], [87].

*First-order Markov Chains.* The phenomenon of the development of brand loyalty over a period of time led to the application of stochastic methods in buying behavior. The bulk of research has been in terms of Markov Chains. In particular, actual research has been carried out on the assumption that brand purchase behavior is a first-order stationary Markov process [2], [99], [100], [129], [154], [160], [223], [231], [232], [293], [324], [364]. For a good statement of the mathematical theory of Markov Chains see Kemeny and Snell [190].

The first-order stationary Markov process has been applied in other aspects of buying behavior also. For example, Fourt and Wooklock [130] and Barclay [18] have suggested its potential use in measuring the success of a new product. Shapiro and Colonna [305] have measured store loyalty by deriving a store transition matrix from panel data. Lipstein [224] has suggested its potential use in evaluating the results from test markets. Recently, he has developed a model

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which relates attitude and behavior [225]. This is achieved by showing that the elements of the transition matrix are functions of three factors—attitude formation and change brought about by advertising, availability of product, and price of product. Similarly, measurement of advertising effects via the purchase transition matrix have been suggested by Grossack and Kelley [148] and Maffei [233]. Mills [252], [253], Kuehn [199], [200] and Longton and Warner [229] have further attempted to measure the determinants of the transition probabilities in terms of past experience or loyalty, and current marketing and promotional efforts.

*Howard's Criticisms.* In the application of first-order Markov processes to brand loyalty, Howard [169] has raised three major problems: (1) aggregation, (2) interpurchase times, and (3) estimation of transition matrix using prior knowledge. Briefly, the problem of aggregation arises because of the practice to use *proportions* of customers purchasing brand *i* as the probability of each individual buyer buying that brand. The same practice is followed in obtaining the transition matrix. Thus, "the Markov chain analysis is not being used as it was originally intended, but rather as some kind of flow model" [169, p. 36]. On the other hand, if we assume that each buyer follows a first-order Markov process, how do we combine several individuals to obtain a model of the whole market? Howard suggests a "vector Markov process" which involves convolutions of *N* different binomial distributions, each of which has a number of trials equal to the number of buyers originally in each state and a probability of "success" given by an *n*-step transition probability for the underlying Markov process. Several conceptual problems exist with his suggestion, however. First, it assumes that each buyer acts independently, which is unreasonable in the light of the vast literature in diffusion of innovation [295], opinion leadership [189], [188], [187], reference group interaction [44], and risk taking [22], [24], all of which postulate an active buyer who seeks information from and is influenced by personal informal sources. Second, the formulation does not estimate the transition matrix but is more like testing the presence of an assumed transition matrix at a given level of significance. Finally, it assumes a homogeneous population of buyers having the same transition probabilities. Frank [181], Farley and Kuehn [116], and recently Morrison [259] have shown that empirical data point to this as an untenable assumption.

The second problem of interpurchase time arises because of the diversity of the individual purchase cycles in a group of buyers, and the inevitable discrepancy between average purchase cycle and the time period chosen for Markov analysis. Farley and Kuehn [116] and Kuehn and Rohloff [209] state that there is some evidence that infrequent buyers tend to behave differently from frequent buyers, and therefore, the arbitrary procedure of creating a dummy state, "No Purchase," is unsatisfactory. Howard suggests that time be incorporated as a random variable and obtain semi-Markov processes which are time-dependent [169, pp. 30-41]. For a different approach and non-significance of the interpurchase time problem see Morrison [260].

The third problem of estimation relates to the utilization of the preliminary estimates obtained from a sample to the national population. Howard [169] and

Hemiter and Howard [159] propose that some sort of Bayesian approach may be appropriate. Morrison points out that "the usual pros and cons that accompany any Bayesian approach are present here" [259, p. 40].

*Objections to Underlying Assumptions of Markov Chains.* Many researchers have objected to the relevancy of the first-order stationary Markov chains in the measurement of brand loyalty. The objections are primarily related to the two assumptions of first-order and stationary properties of transition matrix. With regard to the first assumption, Frank [131] and Montgomery [257] suggest that the brand choice is a Bernoulli process and, therefore, purchase probability at trial  $t$  is independent of all prior purchases. On the other hand, Kuehn has found that the probability of repurchase after 4 consecutive purchases of the same brand was much higher as compared to the probability of repurchase after only one consecutive purchase of the same brand [199], [201], negating both Bernoulli and first-order Markov processes. In a naturalistic experimental design to test the relevance of learning theory, Sheth [306] has found a time dependency for several product categories negating the Markov process.

Kuehn has developed a linear learning model which takes into account the effects of past purchase history going beyond the last purchase [199], [201], [205], [206], [116]. The model assumes that past trials cumulatively affect the purchase decision at a given trial  $t$ , the effect being greatest for the most recent purchase of the brand.<sup>1</sup> On the other hand, if the past trials involved purchase of other brands, they have a negative effect on the current purchase. The slopes of the "gain operator" and the "loss operator" have been assumed to be equal to remove nonlinearity in the system. Kuehn's model is a transformation of the "subject-controlled sequence with equal-alpha assumption" model of learning provided by Bush and Mosteller [61]. It must be pointed out that the equality of the slopes reduces its applicability to only a closed market with well-established brands having homogeneous product-price relations and good distribution [200]. Assuming that the model is relevant in other product markets, Kuehn has as yet been unable to resolve the estimation process. However, the model has been indirectly validated by a factorial design. Recently, Carman [56] has attempted a least-squares solution by estimating two intercepts and one common slope through three normal equations. An interesting compromise between the first-order Markov process and the linear learning model, is the brand-mix model developed by Rohloff and Kuehn [296], [297], [209]. Reportedly, it has provided better estimates of long-term market share movements.

Another objection to the first-order Markov process arises from the assumption of stationary transition probabilities. The recent strong criticism of Ehrenberg [103] is bound to raise issues. Ehrenberg shows that by using a backward-looking process (Vokram), a divergent series is generated which gives negative values—an impossibility. Similarly, given a transition matrix for some base periods I and II, if one wants to work out absolute levels of the past (as opposed to future)

<sup>1</sup> However, an inconsistency exists between this derivation and the negatively accelerating curve of learning theory (see Sheth [306, pp. 155-162]).

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using a forward-looking Markov process, it also gives negative values. In other words, the model will blow up unless a *changing* transition matrix in the past is provided to obtain a stationary transition matrix in the base period. "To assume stationarity of this matrix in the future is something which must be, therefore, inconsistent with the past" [103, p. 356]. Finally, the difficulty of making such an assumption is greatly increased by the arbitrariness (generally) of choosing the particular periods I and II as the base periods.

*A Factor Analytic Model of Brand Loyalty.* Sheth [306], [168] has proposed a factor analytic model of brand loyalty based on Tucker's suggestion to utilize the techniques of principal components analysis in order to estimate parameters of all linear and several nonlinear functions [333], [334]. The model presumes a functional relation where the sequence of purchase trials or time periods is treated as the independent variable and some measure of brand purchase behavior as the dependent variable for each individual buyer. Then a data matrix  $Y$  containing  $Y_{ij}$  elements ( $j = 1, 2, 3, \dots, n$ ;  $i = 1, 2, 3, \dots, N$ ) reflecting the purchase measure of  $i$  individuals at  $j$  trial or time period is approximated by a matrix  $\hat{Y}$ , of rank  $r$  ( $r < n$  or  $N$ ) by the procedures of Eckart and Young [368] and Young and Householder [369]. The approximation is in the least squares sense (most variance accounted for). The approximate matrix  $\hat{Y}$ , is a product of two matrices  $A$  and  $S$  which provide least squares estimates of trial (time-period) and individual buyer parameters respectively. The model is general enough to provide individual and environmental parameters for several linear and nonlinear functions, and to work with both theoretically-based functional relations and empirically-derived functional relations.

Among the advantages of the model over the existing stochastic approaches are: (1) it is a distribution free model and, therefore, can analyze both quantitative and qualitative data; (2) it is the only model which solves the problem of aggregate inference for several functions and provides a criterion as to where the aggregate inference will not be legitimate; (3) the model separates the individual and environmental differences on temporal measures so crucial for understanding the dynamics of brand loyalty; and finally (4) it handles  $m$ -state,  $n$ -time dependent data simultaneously and provides *individual* brand loyalty scores.

*Related Research in Stochastic Methods.* It must be pointed out that only recently the problem of aggregate inference because of heterogeneity of population is being tackled. For example, Morrison [259] has modified the aggregate Markov processes by imposing the requirement that the population of buyers are distributed as a beta distribution function. Similarly, Montgomery [257] and Coleman [74], [75] have used latent Markov processes proposed earlier by Wiggins [357] to overcome the problem of aggregation. None of these methods, however, provide estimates of individual parameters.

In the area of estimating the transition probabilities, the two most common approaches have been the maximum likelihood estimates proposed by Anderson and Goodman [8] and least squares estimates developed by Telser [325], [326], [327]. Telser calculated the estimates based on aggregate market shares of the brands, and his estimates include the effects of variables such as lagged market

share, relative prices, and advertising on the transition probabilities. This writer notes with surprise that no one has used Miller's "auto-correlation" technique of estimating the transition probabilities [250] although it seems most convenient and relevant. In fact, Burt and Foley [58] have estimated an equivalence of the auto-correlation technique and principal components analysis, and have analyzed data with it which shows the traditional learning curve. Similarly, Miehle [249] has provided simplified procedures to calculate higher-order transition probabilities which should prove useful in any exploratory research. If someone wants to obtain Markov analysis without the costly panel data, he is referred to Stock [322].

To complete the review of the stochastic processes applied to buyer behavior, it is necessary to mention that Kuehn has utilized other measures of learning such as latency of response and amplitude of response. Concerning the latter, Twedt [338], [339], Garfinkle [137], and Weilbacher et al. [347] have argued for concentrating on the heavy half of the users, who account for 80 to 90 per cent of the total volume, for advertising and other promotional activities. Ehrenberg [101], [102] has emphasized the use of the negative binomial distribution to establish consumer purchase patterns and to obtain measures of repeat-buying loyalty. The model is a two-dimensional in that purchases of any one individual buyer follow a Poisson distribution over time and that the various average rates of purchasing of all different buyers in the long-run follow a  $\chi^2$  distribution. Farley [114] has utilized the economic concept of utility and its relation to effort directed toward search in explaining brand loyalty. He has also attempted to explain variations in brand loyalty across products; he suggests that factors reflecting importance of purchase, price change activity, multiple use of product and distribution, market share of leading brand, and number of brands may be important [115]. Finally, Demsetz [94] finds that, in the case of new products, consumers learn from experience to realize the artificial differences created by brand names, and they discriminate well between known and unknown brands.

#### *Experimentation*

Experimentation refers to creation of a controlled environment where the experimenter is interested in measuring effects of changing certain independent variables on the dependent variable. Experimentation has been extensively utilized in psychology. In marketing, it has achieved its greatest impact in measuring advertising effectiveness. In buying behavior, its use is relatively new. Probably the most elaborate set of experiments in measurement of brand loyalty has been conducted by Pessier [279], [280], [281]. He has obtained elasticities of demand for several products and also measures of brand preference based on repeat "purchases." Alderson created simulated shopping trips to department stores and made a group of housewives buy products which revealed their decision rules [3]. Recently, Levitt [218] simulated industrial purchasing behavior in an attempt to measure the effects of source and content of communication.

A very good experimental study is reported by Tucker [335]. Female students were provided choice among unknown brands of bread over a period of time, and

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measures were obtained which would reflect their brand loyalty. It is probably the first valid experiment to test the hypothesis that brand loyalty is the result of a learning process. Sheth [306], [307] created a naturalistic experimental design to test the same hypothesis. A small number of foreign students, as soon as they came to the U. S., were asked to record purchases of several product categories. Not familiar with American brands, they learned brand preferences by experience, and within five months most of them were brand loyal.

Several experimental studies on beverages and cigarettes have been reported in which the identification of the brands by taste or under tachistoscopic conditions has been the dependent variable [172], [230], [191], [4]. Recently, a series of experiments which have involved laboratory type set-ups have been published by Holloway and White [162], Holloway [163], Anderson, Taylor and Holloway [7] and Venkatesan [348]. The reader may refer to Banks [15], [16] and Applebaum and Spears [10] for the potential and limitations of the experimental methods.

#### *Computer Simulation*

Computer simulation has recently been used to understand consumer behavior. The basic postulate behind it is the notion that a complex phenomenon like buying can best be approximated by simulation on a computer which to some extent can absorb the complexity. Furthermore, it is possible to manipulate some of the many variables acting as the determinants of buying behavior and to measure their effectiveness, which would usually not be possible in the real world, and if possible, very difficult to measure accurately. Kuehn and Day [204] find that computer simulation has been utilized more as an educational device than for analyzing actual business operations. Recently, however, some exploration in that direction is observed. Balderston and Hoggatt [13] simulated a local lumber market. Cohen [73] has simulated the shoe, hide and leather industry. Other simulations which have indirect implications for marketing are by Orcutt et al. [274], and Simulmatics Inc. [283]. More direct, probably, is the use of industrial dynamics by Forrester [128] to understand aggregate market behavior. Similarly, Emery [105] shows the potential of heuristic marketing processes.

These studies, however, have not directed their attention to individual buyers. Wells [351] emphasizes the potential advantages of simulating individual buyers. An exceptional simulation is by Cyert, March and Moore [90], who simulated the decision-making process of the major appliance department of a large department store with respect to its buying and pricing decision rules. Examples of complex marketing games with the household as the unit of analysis (cell models) come from the CIT and MIT Marketing games [207], [240]. Weiss [349] gives three examples in which simulation has helped the business world. Weiss [348] and Kuehn and Weiss [208] have elaborated upon the simulation of the detergent industry elsewhere. Sprows and Ashinow [315] simulated the buyer in order to show the effects of inducement, contribution, satisfaction, dissatisfaction, and search routines on his buying decisions. The most elaborate cell model simulation comes from Amstutz [5]. His simulation of the "behavioral

theory of market interactions" is especially interesting because of a detailed consumer model which examines in depth the individual household's decision processes.

In summary, operations research, experimentation and simulation have been broadly classified as relational omnispersive concepts. The most important characteristic of this classification is the fact that the observables are directly and readily available to make a conceptual formulation. This classification is closest to the perceptual plane.

#### Classifactory Omnispersive Concepts

Classifactory omnispersive concepts are those "intervening variables" which do not have a functional relation similar to that observed in relational concepts. On the other hand, they are also derived from direct and overt behavioral measures from the perceptual plane. Under this classification fall the market segmentation approaches and social environment influences on buying behavior.

#### Market Segmentation

The rudiments of market segmentation go back to the economic theory of product differentiation in monopolistic competition and price differences among geographical regions that are kept compartmentalized. Market segmentation as currently defined, however, is based upon the notion that in advanced economies, the "discretionary power" of the buyer enables him to specify his preferences based on his own social environment. In other words, economic behavior is now more directed toward satisfying higher-order needs [168]. These higher-order needs are learned by the acculturation process of the individual and, therefore, determined by culture, class, reference groups and the buyer's roles in the community. We will review separately these influences later in this section.

Smith [313], Roberts [292], Bowman and McCormick [46], Bauer [27] and Brandt [47] have shown the relevance of market segmentation to the total marketing strategy. In fact, market segmentation is considered to be the essence of marketing. However, in marketing practice, market segmentation has been as yet limited to the identification and classification of buyers based only on socioeconomic variables such as occupation, income, and education, and on demographic variables such as age, life cycle, marital status, etc. [155], [175], [266], [267], [268]. Recently, Yankelovich [367] points out that the demographic criteria seem to be outmoded for a profitable market segmentation, and that newer criteria in terms of buyer attitudes, motivations, values, patterns of usage, aesthetic preference, etc. should be employed. Similarly, Mainer and Slater [234] have attempted to segment a market based on buyers' brand loyalty. The authors suggest that brand awareness, brand preference, brand last purchased, sequence of purchase, volume and frequency of purchase, and price paid may be useful information to monitor for market segmentation purposes. Baldo [34] has presented an interesting segmentation procedure based on consumer food requirement space (need space). A similar procedure based on purchase criteria which attempts to define the buyer's "predisposition space" is proposed by Howard and Sheth [165, Chapters 3 and 5].

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Recently, rigorous quantitative analysis has been applied to classify and segment buyers. Green [143] shows how Bayesian statistics can be helpful in classifying buyers based on certain relevant characteristics. Frank and Massy [133] and Massy and Frank [239] utilizing M.R.C.A. panel data have attempted to measure elasticities of price and deal changes in the market for short time periods by establishing a distributed lag model and by analyzing segments of the market based on family purchase characteristics, product characteristics, and distribution characteristics. Webster [346] attempted with limited success, to segment the "deal prone" consumer using regression analysis of 45 variables. Frank and Boyd [134] attempted, with negative results, to identify and separate the segment of consumers which buys private-label brands. The analysis of deal-proneness or private-brand-proneness is closely related to another area of interest—impulse buying. Dupont studies [328] show that more than half the housewife's purchases are unplanned. Stern [321], Shaffer [303] and West [353] have reported the importance and recent growth of impulse buying.

We now turn to specific interdisciplinary approaches that have helped segmentation of buyers. Here the three most obvious disciplines which have influenced the marketing manager are anthropology, sociology, and social psychology [336, pp. 28-49].

#### Culture

The role that culture plays in developing buying motives and habits has been implicitly accepted by researchers and specific research has been lacking. "The customer is culture-bound. Probably there will not be enough dried octopus, codpieces and bookshs sold in Omaha in 1970 to support a single person's activities for a week, yet at one time or another and in one place or another, these have been standard items of consumer use. All of them satisfy normal human wants that are in our culture directed in part toward the purchase of shrimp, hairdressing, neckties, and cigarettes" [336, p. 37]. Thus culture provides approved specific goal-objects for any generalized human want. For the potential usefulness of cultural anthropology in understanding buying behavior the reader is referred to Winick [359], Shaffer [304], and Zaltman [370]. For an excellent review of the effects of culture on attitude formation and change in non-marketing and some marketing contexts, the reader must look up Moscovici [282], and Krech, Crutchfield and Ballachy [197, Chapter 10].

At the subculture level, the Negro as an ethnic group has grown to importance. One of the earliest studies of the Negro market by Steele [318] revealed that Negroes are more brand conscious, more brand loyal, and that the loyalty seems to be positively related to the level of income. Very recently, Bauer [27], [28] has found very similar conclusions. A comparative study of Negroes and Whites utilizing depth interview techniques to measure motivational variables is reported by Bullock [58].

#### Class

Social class has recently received some attention in its relevance to consumer behavior. Much of the work has been related to the six classifications of social

class given by Warner [344]. Warner has classified the society into upper-upper, lower-upper, upper-middle, lower-middle, upper-lower, and lower-lower based on variables related to income, source of income, education, occupation, and neighborhood. Kahl [178] and Martineau [238] have extensively studied the differential buying habits and communication sources of consumers belonging to different classes. Martineau argues that a person belonging to a lower class is ill-at-ease when she shops at a place usually visited by higher class people. Levy [221] points to the differences in value systems, interpersonal attitudes, self-perceptions, and daily life among classes which are reflected in choice of media, shopping habits, and context of advertising.

Several studies have attempted to measure the effects of class variable on the purchase of durable appliances [118], [142], [153]. For possible contributions that sociology can make towards understanding the consumer, the reader is advised to read Jonassen [176] and Glock and Nicosia [139].

In consumer behavior, the notion of a "trickle-down theory" based on the ordinal class concept has been in vogue for some time. The theory suggests that people belonging to lower classes emulate or imitate the behavior of people belonging to the upper classes, and in the process, an innovation is gradually diffused from higher to lower classes [310], [17], [113]. However, the trickle-down theory has been criticized on many grounds [192]. Perhaps the most logical objection would come from the level of aspiration theory (see Lewin, et al. [222] for a classic description) which suggests that one's expected aspiration is tempered with reality, and that an individual therefore brings his aspirations to his level of reach in order to avoid constant frustrations. Also, the theory of social interaction (see Homans [164] and Thibaut and Kelly [329] for a good statement) suggests that a person may be more satisfied in an interaction situation where there are similarities of "exogenous factors" such as age, education, background, etc. Coleman [78] provides some evidence which suggests that whatever influence occurs is probably within a given class, and that within each class one can find two groups—the minority which is above-average and the majority which is the average. Finally, Katz and Lazarsfeld [189] also found that there are opinion leaders at all levels of social class rather than a concentration in one class.

Riesman's [290] theory of tradition-directed, inner-directed or outer-directed types of societies has had some impact on the study of consumer behavior. He has argued that Americans are becoming more outer-directed and, therefore, their buying patterns may well become homogeneous over time despite the increase in possible means of spending and the improvement in standards of living [248]. For a recent statement of the theory and its implications for marketing, see Kassarjian [181].

#### *Reference Groups*

The theory of social interaction [164], [329] has received attention in buyer behavior through reference group influences on buying decisions. Bourne [44] suggests a possible dual effect of a reference group on the consumer in deter-

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mining (i) his goals, and (ii) specific courses of action. The former will be reflected in buying or not buying a product class while the latter will influence the type and brand within a product class. Bush and London [60] and Jacobi and Walters [173], [174] have studied the effects of reference groups in the purchase of clothing. In an experimental study, Gruen [145] found that conformity to existing norms of the group was probably the cause for lack of interest in new products among the respondents. On the other hand, Laird [210] has argued that it may be better to advertise new products against which there are no taboos rather than advertise existing products.

Based on the reference group hypothesis, Katz and Lazarsfeld [189] suggested a tentative theory of opinion leadership and two-step flow of communication. The latter states that the flow of information from the company reaches a certain small segment of each class—called the opinion leaders—through the mass media. There is then a second step in the flow of information from the opinion leaders to the masses of each class. The theory provides some interesting implications for marketing strategies, especially in connection with the diffusion of innovations. Based on the theory, the Bureau of Applied Social Research conducted a study of the diffusion of knowledge and adoption of a miracle drug among physicians in a small town. A series of articles have been published on the study under the authorship of Coleman, Katz and Menzel [76], [77], [244], [248], [247], [217]. While the study did confirm the importance of personal influence, the theory of opinion leadership did not work well. On the other hand, Ryan and Gross [302] found that, in rural sociology, the diffusion of innovation did exhibit the two-step flow of communication. For a reconciliation of the conflicting findings, see Katz [188]. The reader may also refer to Rogers [295] for an exhaustive analysis of the diffusion process in rural sociology.

Recently, Winick [360] replicated the drug study in a large metropolitan area and found contradictory results. Menzel [245] has commented on his study showing the differences in procedures and interpretations. Caplow and Raymond [66] also found no significant influence from colleague doctors but since their measures were in terms of awareness and not adoption of the drug, the results are not comparable. For a complete analysis of drug studies see Ferber and Wales [120], [121] and Bauer and Wortzel [29]. The reader is also referred to Whyte [356], Brooks [52], [53] and Arndt [11] on the informal word-of-mouth communication imbedded in opinion leadership.

This completes the review of classificatory omnispersive concepts. They also become the intervening variables proposed by MacCormac and Meehl: the observations are directly from the perceptual plane in terms of overt public manifestations. The difference between classificatory and relational concepts may lie in what Cronbach has called the correlational and experimental approaches to science [82].

#### Propriospective Concepts

The propriospective subtype of adsperspective concepts has to do with the private world of the buyer. The concepts under this subtype reflect the measurements

of the buyer's subjective world, his attitudes, opinions and beliefs by "inner organism" methods of measuring responses [228]. Under this category come the two types of research: (i) consumer anticipations, and (ii) consumer attitudes and preferences.

#### *Consumer Expectations*

This area of research has attempted to relate consumer intentions, anticipations, and expectations of the near future to actual purchase behavior of durable goods. The pioneering work of Katona [182], [183], [184], [185] has emphasized the importance of understanding the household unit for a better prediction of aggregate economic change. Much of the research will not concern us since it does not focus totally on buying behavior. The reader interested in this area is referred to Fetter [119] for an excellent review.

Two aspects of the research in this area, however, are important to our discussion. The first is the decision-making process of the household towards purchases of specific products. The second is attitude measures as predictors of behavior. Katona and Mueller [186] report an extensive study of purchase decisions related to four major appliances and sport shirts. Recently, LeGrande and Udell [216] and Udell [242] have replicated the study with respect to furniture, television and small appliances. The emphases in these studies have been identification of choice criteria, the length of deliberation and planning, shopping behavior, and information seeking processes. Several other studies have shown the relevance of socioeconomic variables to purchase decisions. The reader is referred to four volumes on consumer behavior, three edited by Clark [69], [70], [71] and the fourth by Foote [127]. In particular, life cycle, which takes into account marital status, age and number of children, has been a useful independent variable in several studies [70], [212], [308].

Another aspect is the utilization of the consumer's attitudes toward total economic situation as a predictor of behavior. Morrissett [261] found that an attitude index can successfully predict purchases of many durable appliances, mobility and debt. Mueller [263], [264] has done by far the most exhaustive research in this area. Namias [268], [269] and Juster [177] utilized buying intentions data to show relationships to actual purchases. Klein and Lansing [193], however, found no strong predictive power in attitude measures. Finally, Mueller [263] and Tippts [331] have attempted to relate the effects of the business cycle to consumer purchase behavior. Before we conclude, it must be pointed out that strong disagreement still exists as to the usefulness of attitudes and expectations as predictors of behavior.

#### *Attitudinal Preference as Predictor of Behavior*

Attitudinal preferences specifically towards products and brands have been utilized in grocery products to predict consumer behavior. Brown and Hadary [57] asked, through paired-comparisons, the preferences of industrial workers towards coffee, whole milk, soft drinks and chocolate milk. They found that the preferences reflected well the actual overt behavior of the respondents when

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they were experimentally forced to substitute their regular beverage with others. Brown [56] suggests that attitudinal data, in contrast to purchase panel data, may help the company to formulate proper strategies with respect to product change and promotion, and help to measure advertising effectiveness. Recently, Day has conducted a study on similar lines [92], [93].

Wells [350] has argued for the existence of a continuum of predisposition over which consumers are distributed. Banks [14] obtained a brand preference rating on a scale of 0-8 and found good associations between the preference and brand's share of purchases during a given time period. He found, however, that two other indicators, namely (i) last purchase, and (ii) future purchase intentions, did better in terms of associations with brand shares. He suggests that this is understandable because "preference measurements leave out important factors, such as price and accessibility of brands which affect purchase behavior" [14, p. 281]. Udell [341] utilized Thurstone Scale and found that attitude was a good predictor of behavior with respect to trading stamps.

Recently, based upon Osgood and Tannenbaum's contention that attitude can be equated to the evaluative factor obtained through the semantic differential [275], [276], several attempts have been made to measure consumer's attitudes using the semantic differential. Barclay [19] chose purchase behavior as a validating measure, and found that in both products under investigation, the users of brands rated higher on the 12 semantic differential scales than non-users. Mindak [255], [256] has applied the semantic differential to measurement of attitudes towards brand and corporate images. Landon [211] used the technique for copy testing purposes.

Sheth [306] developed a triadic combination forced choice attitude scale based on Howard-Sheth theory of buyer behavior [168]. He compared the attitude score differences at the aggregate level between a well-known product and a less familiar product. The results strongly suggest that attitude is positively related to product familiarity. Before we conclude, it must be pointed that much of the research has been correlational in nature: positive associations between attitude and behavior are obtained and a causal relation has been only inferred, but no direct test of attitude as the cause and subsequent behavior as the effect has been made. Recently, based upon his cognitive dissonance theory which implies that behavior is the cause and attitude change the effect, Festinger [124] has questioned the validity of assuming that behavior is a function of attitude. Sheth [306] and Howard and Sheth [168] have pointed out that over a period of time, there exists implicit relation between attitude and behavior as both are really interdependent.

#### Specified Hypothetical Concepts

Hypothetical concepts are not defined by the observables directly, although they may contain components which may be so defined. Specified hypothetical concepts are those for which the measures of the components are specified.

Most of the hypothetical concepts, whether specified or unspecified, are based on psychological variables. Perloff [278], Bayton [31], [32] and Lazer and Kelly

[215] have emphasized psychological variables such as learning, motivation, perception, and cognition as being extremely useful to understand consumer behavior. The reader is also directed to Herta [161], Winick [361], Woods [365] and Kotler [196] for a general discussion of behavioral sciences and marketing. In this section, we discuss the research in buyer behavior based on perception and learning.

#### *Perception*

Some researchers have employed the perception phenomenon in understanding buying behavior. Allison and Uhl [4] report that when brands of beer are given in unmarked bottles, beer drinkers are unable to identify the brands. Brand perception as developed by company promotion is, therefore, quite important in keeping customers loyal. Several studies have been reported on the identification of cola beverages based on taste only [45], [285], [286], [287], [288]. Generally, the respondents have not been able to do better than by chance, suggesting that brand preference may be based on brand perceptions developed by marketing and social factors. For a contradictory finding, see Thurston [390]. Kenyon and Pronko [181] supported earlier findings using visual measures under tachistoscopic conditions.

#### *Learning*

At the conceptual level, learning provides direction of behavior in terms of systematically choosing one course of action over a number of courses of action. Operationally, learning is defined as systematic change in behavior [61, p. 3]. Intuitively, learning seems very relevant as a conceptual explanation of brand loyalty. Both are over-time phenomena and both are manifested in a habitual course of action. Alderson [1] places heavy emphasis on the usefulness of learning theory in consumer behavior. Krugman [198] and Tucker [335] have experimentally measured the learning of taste and brand preferences. Earlier we mentioned that the statistical learning theory of Bush and Mosteller has been extensively used by Kuehn in measurement of brand loyalty.

The most serious work in this direction has been by Howard [166] and Howard and Sheth [168]. Reconciling the Hull-Spence learning theory, Osgood's cognitive theory of behavior and the decision-making theory, they have formulated a theory of buyer behavior in which one of the central processes is learning. It is perhaps the most complex theoretical research in the discipline. Morgan [258] is the only other researcher who has provided a systematic conceptualization.

#### **Unspecified Hypothetical Concepts**

Unspecified hypothetical concepts lack the explicit measures of components of the concept. Learning was treated as a *specified* hypothetical concept because of explicit measures in terms of probability of response, latency of response, amplitude of response, and number of trials to extinction provided by Hull [170]. A number of formulations based on individual psychology, however, lack this explicitness, and they are treated as unspecified hypothetical concepts.

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With the maturity of a formulation, it may become a specified hypothetical concept. We will review three major concepts under this section. They are (i) risk taking, (ii) cognitive dissonance, and (iii) Lewin's field theory.

#### *Risk Taking*

Bauer [22] proposed that consumer behavior can be looked upon as a consequence of the perceived risk the buyer faces in his economic behavior. The risk is not the objective risk but one that the buyer perceives as being present or absent, and its perceived magnitude. Perceived risk is present in any decision making under uncertainty, and the magnitude of risk is a function of the degree of uncertainty and the magnitude of adverse consequences.

In the face of risk involved in making a wrong decision, it is hypothesized that the buyer will manifest certain behavioral characteristics such as strong brand loyalty, strong product image influence built by advertising, and certain personal influence processes. Several studies by Bauer [23], Cox [79], Cox and Rich [81] and Cunningham [88], [89] have appeared recently based on risk-taking theory.

One of the important consequences of risk-taking formulation has been to suggest that the buyer faced with a risky decision is an active seeker of information as opposed to the passive audience assumption of mass communication [25], [80]. Further, his directive search may be different than what mass communication normally assumes it is. Depending upon the perceived risk involved, the buyer will resort to commercial sources or informal sources [80]. For an interesting experiment which combines the Bayesian approach and the risk notion for the active seeking of information, see Green, Halbert and Minas [144]. Recently Bauer [26] has hypothesized that with high perceived risk a person will play the problem-solving game and with low perceived risk, the person may be free to play the sociopsychological game of defending his ego or ingratiating the salesman.

Sheth [168, Chapter 8] has argued that over a period of time, with learning from experience or information, perceived risk must change and come to a minimal level because uncertainty is reduced by experience or information. Furthermore, it seems probable that in the early stages of learning, the buyer plays the problem-solving game, and at the equilibrium position, he is free to play the sociopsychological game. Playing a particular game is more likely to be the function of the stage of learning. This means that the same individual may play different games for the same product at different times. This brings out one of the fundamental problems in risk-taking: it is not a dynamic concept. Bauer has not provided any theoretical considerations as to whether risk changes over time. The author is currently investigating the relation between risk and learning in an experiment which may clarify the issue.

#### *Cognitive Dissonance*

Several studies have utilized the cognitive dissonance theory in buyer behavior. Cognitive dissonance theory was formulated by Festinger [122] in 1957. Today it is a well-researched area in psychology [50], [123]. The fundamental

proposition of the theory is that when two cognitions (bits of knowledge) related to opinions, attitudes, behavior, or the reality of the world are opposite in nature, and one follows from the obverse of the other, psychological discomfort is produced in the human being which has motivational properties [123]. For fuller implications of the motivational properties, see Brehm [49]. The psychological discomfort creates a state of dissonance which the person reduces by making the dissonant cognitions consonant in a variety of ways. Festinger suggests that the theory is relevant in at least five major behavioral areas, two of which seem important in buying behavior. They are (i) choice decision among alternatives, and (ii) phenomenon of discrepant information.

The theory predicts that after choosing between two equally attractive alternatives, dissonance will arise which can be reduced by enhancing the attractiveness of the chosen alternative and by increasing the negative attitude toward the rejected alternative. In the process, the person will be more selective to information which will support his decision. Studies by Brehm [48], Ehrlich et al. [104], Mills [254], and the laboratory experiments of the Minnesota group [7], [162], [163], [343] have supported the theory to a limited extent. For negative findings, the reader is referred to Engel [106], [107]. Straits [323] has raised several methodological questions on the Engel study, and Engel [108] has replied to clarify the issue further. There appears to be no study in consumer behavior which relates to the phenomenon of discrepant information, although the recent Ford Motor Company's advertising theme, "Ford is Quieter than Rolls Royce," would certainly attest to the phenomenon. For several non-marketing studies, see Brehm and Cohen [50].

The dissonance theory seems to operate indirectly in ad readership data. Starch [316] has found that for both non-durable and durable goods, ad readership of a specific brand is higher among users of the brand than among non-users. Brown [55] has noted that 90 per cent of the people who had recently purchased a Ford read Ford advertisements.

This reviewer finds the same fundamental problem with dissonance theory as with risk-taking: both are "static" and do not deal with dynamics of brand loyalty or buyer behavior. Since risk is a predecision phenomenon (it is an improvement over conflict theory in that it adds the dimension of uncertainty) and cognitive dissonance a post-decision phenomenon, it would appear that like risk, dissonance should be negatively related to learning. In another study, this author is investigating the interaction between learning and dissonance.

#### *Lewin's Field Theory*

Lewin's topological formation of a vector having force, direction and point of impact, and the underlying positive and negative valences towards a given goal-object have been utilized by Bilkey [37], [38], [39], [40] in consumer behavior. Generally, a product toward which the buyer had a net positive valence was the one purchased by him. Several methodological and conceptual problems remain, and it is unfortunate that no other researcher has taken serious interest in Lewin's theory. This reviewer finds a close connection between Lewin's field theory and Hull's learning theory on the one hand (see Campbell [64]), and

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Miller's conflict theory [98], which has direct relevance to risk taking and dissonance theory, on the other hand.

#### Fictional Concepts

Fictional concepts refer to entities, events or relations which are assumed not to correspond to fact. The fictional concepts commonly assume an analogical form in that the phenomena to which reference is made are observed in a different realm and provide understanding by way of comparison. The difference between hypothetical concepts and fictional concepts lies in the fact that the former are an integral part of the product or situation under investigation (i.e., they are topic-bound) while the fictional concepts are topic-free and the same concept is relevant, in an analogical way, across product categories and over time. The psychoanalytic, personality and self-concept, as they are related to buying behavior of a variety of products, fall under this category. They are generally referred to as motivation research. For definition and classification of motivation research in marketing, see Rose [208], Lockley [226], [227] and Smith [312].

#### Motivation Research—Psychoanalytic Approach

The Freudian School, which believes that motives underlying buyer behavior are lodged in the subconscious and related to the innate libidinal instincts that become structured in the oral, anal, and phallic phases of early childhood experiences, is the core of the psychoanalytic approaches in consumer behavior. Goodman [140], Dichter [97] and Levy [219] give numerous case histories and practical research to support the psychoanalytic approach.

The Freudian School has emphasized the traditional clinical techniques of depth interview and projective techniques. For a classification of other methods, see Campbell [63] and Lockley [226]. A classical case history in motivation research is the psychoanalytic study of Saran Wrap using depth interview technique [42]. The projective technique, however, has been used more for revealing attitudes about those products about which the buyer is unwilling to make direct statements because of social taboos. Several studies have used the projective technique. The classic study is by Haire [150] who found certain inhibitory tendencies in purchase of instant coffee in the early fifties. A housewife using instant coffee was characterized as lazy, disliking cooking, and a poor housewife in general. Westfall, Boyd and Campbell [355] adopted a more direct approach, and their findings also supported Haire. Hall [151], however, has raised several methodological questions concerning poor classification, and small sample size, and leading questions. Sethi [309] replicated the study very recently. He not only found that social taboos against instant coffee were now absent, but surprisingly found that Haire's list contained items, such as potatoes and hamburger, which evoked the greatest amount of comment on the poor dietary habits reflected by the starchy foods. The reader is referred to Zober [371], Weale [345], and Greenberg [146] for other applications of the projective technique in consumer behavior.

The application of clinical techniques and reliance on Freud have come under severe criticism [299], [282], with rebuttals from the proponents [96], [226].

A related development which has emphasized the subconscious level of the mind is subliminal advertising. Rose [295] cites literature which suggests that subliminal perception does occur. However, the active selectivity of individuals tends to interfere strongly between subliminal perception and subsequent overt purchase behavior. In other words, no subliminal perception is known that can effectively coerce human action against the conscious, deliberate will of the person. It is, therefore, unfortunate that public fear based on emotions has been aroused on the issue.

#### *Motivation Research—Personality Variables*

Another school of motivation research has incorporated later life social influences in the development of personality rather than relying on innate libido or early childhood experiences. It has primarily concentrated on establishing correlations between personality tests and product purchases. As Wells states, "The findings of these studies have been very consistent. Almost always, they have resulted in statistically significant correlations that have been too small to be of much practical value" [352, p. 187].

A large part of the research has been in the area of automobile buying. However, several studies have focused on nondurable goods. Koponen [195] and Eysenck et al. [112] have attempted to identify the personality of smokers. Boulding [43] found that spending and saving behavior are related to personality differences. Tucker and Painter [337] have found Gordon Personal Profile a useful personality measure for a variety of personal care products. Gottlieb [141] shows differences in usages of antacid and analgesic drugs as being related to compulsiveness, punitiveness and health attitudes. Other studies include Greene [147] on magazine readership and Kamen and Peryam [179] on food monotony.

Several studies on automobile buying have attempted to relate automobile brand purchase to some personality correlates [237], [12], [97]. The most objective and controversial study is by Evans [109]. Evans attempted to find personality differences (based on Edward Personal Preference Schedule) between Ford and Chevrolet buyers because of the feeling in the industry that Ford owners were independent, impulsive, masculine, alert to change and self confident, while Chevrolet owners were conservative, thrifty, prestige-conscious, less masculine, and tended to avoid extremes. After exhaustive analysis of the data, he concludes, "This study suggests that many of the commonly held assumptions in marketing about brand images are either wrong or misleading. The evidence points neither to strong images attracting definite kinds of people nor to the use of automobiles for satisfying deep inner needs in symbolic terms" [109, p. 266]. Several researchers have re-examined the data and have shown, based on the re-analysis, that there is more significance than Evans claimed [219], [353], [208]. Evans has replied to some of them [110], [111]. Finally, Westfall [354], utilizing Thurstone Temperament Scale, found significant differences

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#### *Motivation Research—Self-Concept*

Self-concept is a further liberalization of the early development of personality theorized by Freud. It involves the impact that the social surroundings, including the reference groups and social strata, have on the self image of a person and how it will be reflected in his actions, including purchase behavior [136], [219], [220], [270], [271], [291]. Thus, products and brands are symbols which reflect this self-image of the buyer. Sommers [314], employing methodology as propounded by Stephenson [320] explicitly examined the relation of product symbolism and the social stratum of consumers. The self-concept has its theoretical roots in Rogers' self theory [294], [152]. Rogers utilized group therapy and other clinical devices to formulate and support his theory. With the application of Q-sort given by Stephenson, the self-concept theory has attained a certain objective level. Its use in the field of attitude change is widespread.

Recently, Birdwall [41] used Osgood's semantic differential to test the hypothesis that an automobile owner's perception of his car is essentially congruent with his perception of himself. He developed a set of bipolar scales which could be used to describe the self and the car. The results, though based on small sample, showed that there was a close relationship between automobile owners' perceptions of themselves and their cars which reflect a high degree of congruence. Sheth modified the study to obtain perceptions of an ideal car and a "nonsense" car along with the buyer's own car. The congruence was highest with the ideal car, second with currently owned car, and last with the "nonsense" car, supporting Birdwall.

In summary, the motivation research approaches have been analogical concepts where measures developed in another area have been associated with differences in product and brand usages. Much of the research has been significantly related in only minor ways to consumer behavior. Lack of replication, the judgmental nature of the techniques, and problems of small sample size have probably contributed to the confusion and the controversial status that motivation research has achieved in buyer behavior.

#### **What to Conclude?**

The various formulations for understanding buyer behavior at best seem interdisciplinary; mathematical statistics, cultural anthropology, sociology, social psychology, and conscious and unconscious psychology of the buyer all seem relevant. It is also evident that both the correlational and the experimental approaches of scientific enquiry have been utilized. A closer look at the classificatory scheme in terms of the adsperspective-ultraspective continuum reveals that the further the researcher has attempted to reach within the buyer, the farther removed he has been from the observable world: hypothetical concepts have become necessary. Also, from a topological viewpoint we may say that the conscious and the unconscious buyer has been surrounded by several fields of group, class, and cultural environments, each field becoming broader in scope.

*How to Evaluate?*

We will borrow several concepts from the philosophy of science as to what constitutes science [126], [273], [236]. Figure 2 shows the structure of a highly formalized science. It consists of a perceptual plane where observable data exist and a conceptual plane where theoretical constructs exist. A mature science cannot exist without both planes. The single lines represent formal connections in the *C* plane among a set of constructs labelled *C* which results in a nomological network. All *C* Constructs are multiply connected, i.e. they involve at least two arms. *C'* and *C''* in Figure 2 suffer from a weakness; the *C'* construct (peninsular-type) has only one connection and the *C''* construct (insular-type) has no connection with the remaining constructs. There should be a minimum of *C'* and *C''* constructs to constitute a body of knowledge as a formal science.

A distinction is made in the *C* plane between intervening variables and hypothetical constructs along the line suggested by MacCorquodale and Meehl [230]. The intervening variables are simply the transformations of the observable phenomena and contain no surplus meaning. Hypothetical constructs contain surplus meaning beyond the factual content.

Intervening variables are connected to the perceptual plane by double lines which show the rules of correspondence and entail proper definition and measurement. Two characteristics of the intervening variables, as Lazarsfeld [213] suggests, are that (1) they are probabilistically rather than deterministically related to the hypothetical concepts, and (2) they form an index or composite measure consisting of a number of indicators observed in the *P* plane. See also Dewey [95] and Koeh [194].

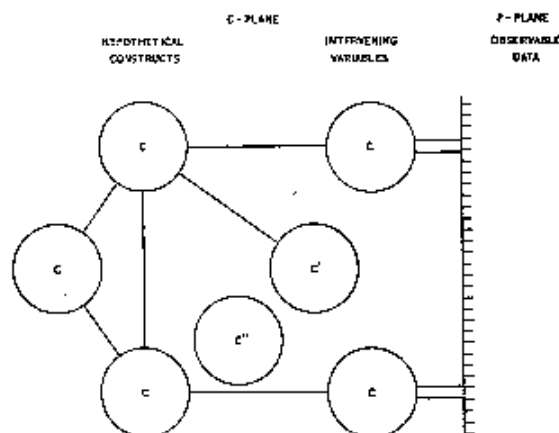


FIGURE 2. A conceptual framework for a formal theory

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We may safely state that the role of the intervening variables is to provide the "how aspect" of observable data and that of the hypothetical constructs is to provide the "why aspect" of observation. Since both types of constructs are essential in a formal science, we see that one should not argue about which aspect is most important; both are essential.

In light of the above criteria of a formal science, the existing concepts in consumer behavior are reclassified in Figure 3.

The result is startling. What looked like a well-researched and developed discipline of buyer behavior turns out to be a number of isolated C' and C'' type constructs. None of the constructs has a multiple connection. The intervening variables are peninsular in that they have roles of correspondence to the ob-

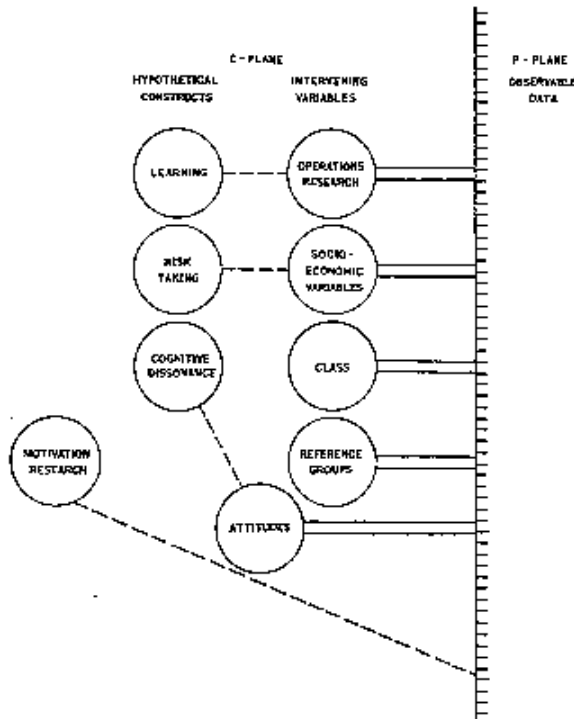


Figure 3. Reclassification of current research concepts in terms of criteria of a formal theory.

servable data but no theory. In the strict sense, the double lines ought not to be there in view of the fact that serious problems of definition and measurement with respect to quantitative techniques such as Markov chains and linear learning model, socioeconomic variables, class, and attitude still remain. On the other side, we have a lot of hypothetical concepts which have only tenuous and limited links to the observable data, and these are shown by dashed lines. What we really have, then, are a set of insular hypothetical concepts and a set of peninsular intervening variables reflecting a lack of formal science. What is more, they have lived an independent existence. Indeed this reviewer has more than once felt that the situation resembles the seven blind men touching different parts of an elephant and making inferences about the animal which differ, and occasionally, contradict one another.

However, if we look at the present state of research from the point of view of the historical development of a mature science, the existing amount of research in the area within a short period of 25 years is indeed pleasantly surprising. It is appropriate to say that—to correctly interpret Hempel [157, p. 46-68]—in the early stages of the development of science, a dichotomy between hypothetical concepts (theory) and intervening variables (empirical investigation) is not only inevitable but may be desirable for the advancement of the discipline.

To conclude, the discipline of buyer behavior has not yet reached a stage where it must emerge as a mature science. It can be helped by some attempt to provide a formal theory which would obtain a nomological network among the hypothetical concepts on the one hand, and establish proper rules of correspondence, via the intervening variables, with the *P* plane, on the other hand. The best bet seems to be concentration on the individual buyer with some basic psychological processes as hypothetical concepts which then are modified by environmental marketing and social influences.

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