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THEORETICAL AND CONCEPTUAL ADVANCES IN CONSUMER BEHAVIOR ANALYSIS

Invitation to Consumer Behavior Analysis

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This article presents an introduction to consumer behavior analysis by describing the Behavioral Perspective Model of consumer choice and showing how research has, first, confirmed this framework and, second, opened up behavior analysis and behavioral economics to the study of consumer behavior in natural settings. It concludes with a discussion of current investigations in consumer research and theory. Hopefully, it will serve as an invitation to other researchers to work within this exciting and relevant context.

KEYWORDS *consumer behavior analysis, Behavioral Perspective Model, behavioral economics, marketing*

Although the main theoretical perspective of consumer research has been cognitive, behaviorism receives intermittent mention as a possible contributor, though its potential for understanding consumer choice remains underdeveloped. Some consumer theories incorporate it to deal with routine aspects of consumer behavior, while other treatments approach it as a source of marketer, especially retailer, tactics. The possibility that behaviorism provides insights into the explanation of consumer choice has been neglected. *Consumer behavior analysis* (CBA), the application of behavioral economics to the sphere of human consumer choice, particularly in the context of advanced marketing-oriented economies, attempts to redress the balance by exploring the nature of behaviorist explanation and its capacity to enlighten consumer research (Foxall, 1998, 2001, 2002, 2003).

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In light of the theoretical and empirical advances made by behavior analysts in verbal behavior and behavioral economics during the last two decades, behaviorism promises to extend the investigation and explanation of consumer behavior beyond the limits of a purely cognitive approach. Behavioral economics, in particular, combines the rigor of operant theory with the methods of experimental economics, with the aim of understanding aspects of consumer choice that cognitive consumer psychology has often neglected, such as gambling, addiction, and health-related behaviors, as well as more routine features of consumer behavior, such as product and brand choice. Consumer behavior analysis adds to this the contextual framework of consumer decision-making in marketing-oriented economies, adding further to the interdisciplinary base of the psychological investigation of economic behavior (DiClemente & Hantula, 2003b; Foxall, 2009, 2010a, 2010b).

THE BEHAVIORAL PERSPECTIVE MODEL

The original aim of the CBA research program was to ascertain whether a model of consumer choice based on a radical behaviorist framework was feasible, and if so, what the epistemological nature of such a route to explanation would be (Foxall, 1994, 2004a). So the aim has never been to change the paradigm in consumer research in favor of behaviorism, but to test a radical behaviorist depiction of consumer choice to its limit, adding in other approaches to explanation only as and when they became essential. The earliest stages involved critiques of the central explanatory devices assumed in consumer research at the time, notably the ideas that attitudes and intentions inevitably precede, prefigure, and determine consumer behavior, or that novel behavior on the part of consumers was explicable in terms of underlying traits of “innovativeness.” The development of a model of consumer behavior based on radical behaviorism resulted in the Behavioral Perspective Model (BPM), which is an elaboration of the “three-term contingency,” the basic explanatory device of operant psychology in which a discriminative stimulus (S^D) marks the occasion on which a particular response (R) is likely to be rewarded or reinforced (S^R), i.e., to increase in frequency, or punished (S^P), i.e., to decrease. The three-term contingency is usually depicted as $S^D : R \rightarrow S^{R/P}$ where $:$ indicates that the probability of an operant response is increased in the presence of the S^D , while by definition that response leads to consequences that are reinforcing and/or punishing. The model shown in Figure 1 adapts these key elements to suit the interpretation and prediction of human economic behavior in affluent societies.

Consumer choice is the outcome of the consumer’s learning history meeting the current consumer behavior setting, the point at which the experience of consumption meets a new opportunity to consume. This intersection is the *consumer situation*, the immediate determinant of approach-avoidance

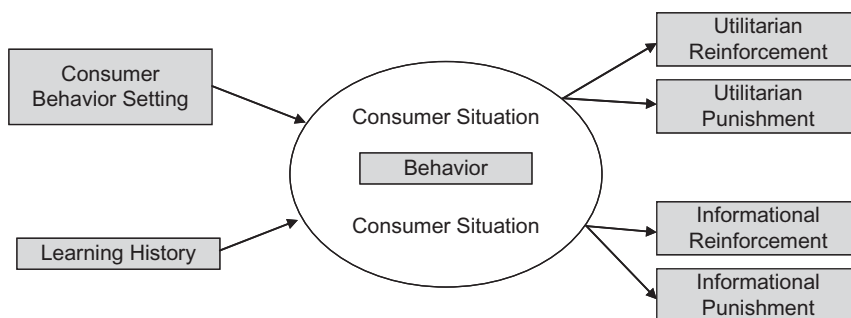


FIGURE 1 Summative Behavioral Perspective Model.

responses involved in purchase and consumption. The *consumer behavior setting* comprises the stimulus antecedents of that behavior, some of which will have been present on earlier consumption occasions. Given the individual's learning history, i.e., past choices and the reinforcing/punishing consequences they have had, these initially neutral stimuli are transformed into the discriminative stimuli that set the occasion for current choice; in particular, the individual's consumption history invests them with meaning, in the sense of a capacity to generate specific kinds of approach and or avoidance behaviors, which produce consequences that regulate the rate of recurrence of the behaviors that produced them. The consumer situation also consists of motivating operations (MOs), such as rules that invest the consequences inherent in the discriminative stimuli with additional motivating or inhibitory power by making the consequences of radical behaviorism appear more or less reinforcing, more or less punishing.

The Consumer Behavior Setting

Like the three-term contingency, the BPM specifies antecedent stimulus conditions (the behavior setting) but combines the concepts of discriminative stimuli and motivating operations by means of the construct of behavior setting *scope*, the extent to which these setting elements encourage or inhibit the behavior predicted to occur in such settings. Settings of purchase and consumption are all *relatively* open, but differ from one another along a restricted continuum of closed-open consumer behavior settings. Waiting in line at the bank to pay in a check occurs in a relatively closed consumer behavior setting; there is probably no alternative to being there and waiting until a teller becomes available, standing in an orderly fashion is encouraged both by the physical style of the building and by the social arrangements, and deviation from the established behavior program of the setting is likely to be punished by stares or glares. An open consumer behavior setting encourages a wider range of alternative behaviors. In a bar, for

instance, all manner of beverages and snacks may be available, there may be TV to watch, talking loudly may not be discouraged, and even singing and dancing may be possible. The customer is free to leave at any time, even if only to go to another bar in the vicinity—at least far freer than he or she would be to leave the bank and find another at which to present the check.

Patterns of Reinforcement

The consequences of economic behavior fall into three types: (a) utilitarian reinforcement, which consists in the functional outcomes of behavior; (b) informational reinforcement, which stems from the symbolic outcomes, principally performance feedback; and (c) aversive/punishing consequences, the costs of purchase and consumption. Such aversive outcomes can themselves be subdivided into those that are utilitarian in nature and those that are symbolic. Utilitarian reinforcement consists in the direct usable, economic, and technical benefits of owning and consuming a product or service, while informational reinforcement inheres in benefits of ownership and consumption, which are usually social in nature and consist in the prestige or status as well as the self-esteem generated by ownership and consumption. The driver of the cheapest car available is principally concerned with the utilitarian benefits that all cars provide: most obviously, door-to-door transportation. Informational reinforcement, on the other hand, is more likely to involve a lifestyle statement by which the consumer seeks to convey his or her social status or to bolster esteem and/or reported feelings of self-esteem. The driver of a Porsche clearly gets from A to B in it but also receives social esteem and status from others as well as personally conferred self-esteem. These constitute symbolic rewards of consumption. Most products have an element of both the instrumental and the symbolic. A mobile phone not only provides communications services when and where the consumer wants them; because it has interchangeable colored cases, it may also signal to that consumer's social group that he or she is "cool" (or, a year later, "not so cool").

Patterns of reinforcement, based on combining high and low levels of utilitarian reinforcement and high and low levels of informational reinforcement, suggest four operant classes of consumer behavior as illustrated in Figure 2. The four broad classes of consumer behavior that can be inferred

	High utilitarian reinforcement	Low utilitarian reinforcement
High informational reinforcement	ACCOMPLISHMENT	ACCUMULATION
Low informational reinforcement	HEDONISM	MAINTENANCE

FIGURE 2 Operant classes of consumer behavior defined by pattern of reinforcement.

		BEHAVIOR SETTING SCOPE	
		Closed	Open
ACCOMPLISHMENT	CC2	Fulfillment	Status consumption
	CC1		
HEDONISM	CC4	Inescapable entertainment	Popular entertainment
	CC3		
ACCUMULATION	CC6	Token-based consumption	Saving and collecting
	CC5		
MAINTENANCE	CC8	Mandatory consumption	Routine purchasing
	CC7		

FIGURE 3 BPM contingency matrix.

are as follows. *Accomplishment* is consumer behavior reflecting social and economic achievement: acquisition and conspicuous consumption of status goods, displaying products and services that signal personal attainment. *Hedonism* includes such activities as the consumption of popular entertainment. *Accumulation* includes the consumer behaviors involved in certain kinds of saving, collecting, and installment buying. And *Maintenance* consists of activities necessary for the consumer’s physical survival and welfare (e.g., food) and the fulfillment of the minimal obligations entailed in membership of a social system (e.g., paying taxes). Both types of reinforcer are included to differing extents in each of the four classes. Adding in the scope of the current behavior setting leads to the eightfold way depicted in Figure 3, which shows the variety of contingency categories that exclusively constitute a functional analysis of consumer behavior. Let us take a closer look at the four broad operant classes of consumer behavior with the added complexity of consumer behavior setting scope added in.

ACCOMPLISHMENT

In an open setting this consists in general of the *purchase and consumption of status goods*: luxuries and radical innovations such as exotic vacations and (at this moment) iPhones. The items in question are possessed and used for the pleasure or ease of living they confer, the well-being they make possible for the individual; they thereby provide extensive informational

rewards. As status symbols, their conspicuous consumption strengthens the behavior in question. They attest directly, and often publicly and unambiguously, to the consumer's attainments, especially economic. Goods in this category are usually highly differentiated—by novel function in the case of innovations, by branding in the case of luxuries. In a closed setting, Accomplishment can generally be described as *fulfillment*, personal attainments gained through leisure, often with a strong element of recreation or excitement as well as achievement. It might, for instance, include both the completion of a personal development seminar and gambling in a casino, both of which are maintained by high levels of utilitarian and informational consequence in fairly closed settings.

HEDONISM

In an open setting, this consists of *popular entertainment*: viewing TV game shows, which provide near-constant utilitarian reward, or reading mass fiction, which contains a sensation on almost every page. iPods, and in their day, DVDs, have made such reinforcement more immediate to the point of ubiquity. Mass culture presents frequent and predictable, relatively strong and continuous, informational rewards, which are not contingent on long periods of concentrated effort. The arrangement of reinforcers is such that viewing, listening, or reading for even a short interval is likely to be rewarded. Informational feedback is more obvious on some occasions than others, as when game shows allow the audience to pit their own performances against that of the competing participants, but it is not the main source of reward. Hedonism in closed settings often consists of inescapable entertainment and amelioration. The behaviors in question are potentially pleasurable but may become irksome because they are unavoidable. Consumption of these products and services may be passive rather than active. An example arises when long-haul airline passengers purchase meals and movies along with their travel. The meals are usually consumed, like the in-flight movies, which follow them, without alternative. The setting, which cannot be other than highly restrictive for safety reasons, is further closed by the pulling of blinds, the disappearance of flight attendants, the impossibility of moving around the plane, and the attention of fellow passengers to the movie. To try to read or engage in other activities may even invite censure.

ACCUMULATION

In an open setting, Accumulation is *saving and collecting*: purchases for which payments are made prior to consumption—installments for a holiday, which can only be taken once the full amount has been paid. Discretionary saving with the intention of making a large purchase once a certain amount

has accumulated is also included, as are promotional deals requiring the accumulation of coupons or other tokens before a product or service can be obtained. The immediate reward is informational, consisting of feedback on how much one has accumulated, how close one is to the ultimate reinforcer. Accumulation occurring in a closed setting may be described, in general terms, as *token-based buying*, which also involves collecting via schemes in which payment for one item provides tokens with which future rewards are obtained. The points earned by frequent flyers constitute informational reinforcers; some hotels offer gifts to frequent customers who accumulate points on each stay. The setting is relatively closed, because once one becomes a member of the scheme there is an incentive to remain in it.

MAINTENANCE

In an open setting, Maintenance is *routine purchasing and consumption* including buying goods necessary for survival, as in the habitual purchasing of groceries at a supermarket. Comparatively few such consumers are brand loyal in the sense of always choosing the identical brand in a long sequence of shopping trips. There is so much choice that the consumer enjoys considerable discretion among versions of the product. Maintenance in closed settings is *mandatory purchase and consumption* and includes consumer behaviors necessary to remain a citizen: the payment of taxes for public goods, payments into pension schemes, and payments (as in the UK) of TV licenses.

RESEARCH

Early applications of the BPM were as an interpretive device. Issues central to consumer research were examined not within the usual cognitive framework but from a behavioral perspective; the relationship between consumers' attitudes and behavior, the adoption of innovations, spending, consuming and saving, "green" consumption, and the nature and influence of marketing management were interpreted within the new framework (Foxall, 1996, 2010a). Most of this work was conducted within an ambience of testing out behavior analysis by comparing it with the conventional information processing accounts of consumer choice, a desire to promote a clash of competing explanations. Four strands of later research exemplify the empirical testing of the model, which has been based on a scientific rather than interpretive methodology: (a) the prediction of consumers' emotional responses to retail and consumption environments (Foxall, 2005); (b) the application of matching and maximization techniques to consumer choice (Foxall, Oliveira-Castro, & Schrezenmaier, 2004); (c) the analysis of consumer demand (behavioral economics) (Foxall, Oliveira-Castro, James, & Schrezenmaier, 2007); and (d) experimentation (Sigurdsson, Saevarsson, & Foxall, 2009).

Emotional Response

The first aim was to test the model as a whole, to understand whether (and if so, how) the three structural variables of setting scope, utilitarian reinforcement, and informational reinforcement interacted. Eight empirical studies conducted in a variety of cultural settings employed a tripartite classification to emotion, based on Mehrabian and Russell's (1974) theory of environmental psychology in which the central emotions are pleasure, arousal, and dominance. Measures of these emotions were hypothesized as predictable in consumer contexts defined by the BPM, so that utilitarian reinforcement was expected to generate pleasure, which would imply satisfaction and utility; informational reinforcement was to be associated with arousal, which would reflect behavioral feedback; and the scope of the consumer behavior setting would correspond to dominance, i.e., being in control. The results of this work confirm the predictions (Foxall, 2005; Foxall & Greenley, 1999; Foxall & Yani-de-Soriano, 2005, in press; Yani-de-Soriano & Foxall, 2006; Yani-de-Soriano & Foxall, in press). The expectations of a larger pleasure score for higher utilitarian reinforcement were supported; similarly, a larger arousal score was found for greater informational reinforcement, and a larger dominance score characterized a more open consumer behavior setting scope. The results indicate that by using the pleasure, arousal, and dominance measures to predict verbal responses to the consumer situations defined by the BPM contingency matrix, it is possible to make useful predictions of consumer behavior.

Matching and Maximization

Matching is the tendency of animals and humans to distribute their responses between two choices in proportion to the patterns of reward programmed to be contingent on each choice (Herrnstein, 1997; see also Davison & McCarthy, 1988). The key dependent variable is not the single response that needed contextual explication in terms of a single contingent reinforcer; it is the relative frequency of responding, which Herrnstein explained by reference to the relative rate of reinforcement obtained from the behavior. Animals with two opportunities to respond (pecking key A or key B), each of which delivers reinforcers (food pellets) on its own reinforcement schedule, allocate their responses on A and B in proportion to the rates of reward they obtain from A and B. This phenomenon has been replicated in numerous species including humans and has found applications in behavior modification and organizational behavior management, to name but two relevant fields. In particular, it provides a framework for the behavioral analysis of consumption (Foxall, 1999a). The phenomenon is particularly well-researched in contexts that require an individual to allocate a limited period between two choices, each scheduled to produce reward at a different rate.

It should, therefore, provide a means of describing and explaining human consumer choice in natural settings and, despite problems common to translational research based on the matching law in everyday contexts such as sports and consumer choice (Curry, Foxall, & Sigurdsson, 2010), it has proven a valuable foundation for consumer research and theory.

Most choices for human consumers require allocation of a fixed income between alternative choices, each of which exacts a different monetary sacrifice. In this case, responses take the form of surrendering money in varying amounts, while the reward is the receipt of a fixed amount of the good in question. Price is the ratio of units of money that must be exchanged for units of the good. Both matching and maximizing theories make a similar prediction of behavior on such schedules: the individual will maximize by exclusively selecting the schedule that provides the higher return. Studies of animal choice confirm this prediction. The reason is that, given the parameters of matching in the context of consumer choice, where the schedules that govern performance are close analogues of the ratio schedules imposed in the operant laboratory, both maximization and matching theories predict a similar pattern of choice, one that eventuates in maximization and matching by virtue of the expectation that consumers will always select the cheapest alternative when selecting among brands. The expected behavior pattern is, therefore, exclusive choice of the more favorable schedule. Although there is some evidence that this is generally the case, there are frequent exceptions in that consumers sometimes buy the most expensive option or, on the same shopping trip, purchase both cheaper and dearer versions of the same product, something that animal experiments, which demand discrete choices in each time frame, do not permit their subjects (Foxall & Schrezenmaier, 2003; Foxall et al., 2004). In other words, the marketing system adds complications to the analysis that cannot be anticipated within the original context of the behavioral economics research program. Even behavioral economics research with human consumers in real-time situations of purchase and consumption (token economies and field experiments) have not been able to incorporate such influences on choice as a dynamic bilateral market system of competing producers who seek mutually satisfying exchanges with consumers whose high levels of discretionary income make their selection suppliers not only routine but also relatively cost-free (Foxall, 1999b). Behavioral economics experiments with human consumers have at best been able to incorporate only a portion of the full marketing mix influence on consumer choice. It has typically been possible to employ price as a marketing variable but not the full panoply of product differentiation, advertising and other promotional activities, and competing distribution strategies, which are the dominant features of the modern consumer-oriented economy. Moreover, because it is the marketing mix, rather than any of its elements acting in isolation from the rest, that influences

consumer choice, such experiments have been unable to capture the effect of this multiplex stimulus on purchasing and consumption.

Our analyses found that brand competition was generally marked by ideal matching, while product choices, as demonstrated by wine and cola purchases by some degree of under-, over-, or antimatching. Relative demand curves were generally downward sloping (Foxall et al., 2007). Consumers maximized by purchasing the least expensive of the brands composing their considerations sets. Where there were exceptions from the predictions of matching and maximizing theories, they occurred for reasons peculiar to the marketing context: first, because the composition of consumers' consideration sets often meant that their selections were among premium priced, higher quality brands, or at least those more highly differentiated through promotional activity, rather than among all of the brands that made up the product category.

An interesting outcome of the application of matching theory to consumer choice is the finding that brands can be defined in terms of their substitutability, while product groupings and categories whose members are independent or complementary, indicated by under-, over-, or antimatching, present further evidence on this (Foxall, Wells, Chang, & Oliveira-Castro, 2010; Foxall, James, Oliveira-Castro, & Ribier, 2010; Romero, Foxall, Schrezenmaier, Oliveira-Castro, & James, 2006). We benefit here from making a distinction between utilitarian and informational or symbolic reinforcement, which goes beyond the usual distinction between primary and secondary reinforcers. In the case of brands, it is inevitable that they will tend to be substitutes in so far as they are functionally similar (almost identical in terms of physical formulation), i.e., in terms of utilitarian reinforcement, and complements in so far as they are differentiated by branding; i.e., in terms of informational reinforcement or social symbolism. Branding is an attempt to reduce the perceived substitutability of brands by altering their value to the consumer on the basis of their social significance (e.g., increasing the status of their owners and users) or psychological significance (e.g., enhancing the self-esteem of those who own and use them).

Patterns of Reinforcement

The pattern of reinforcement (the pattern of low-to-high utilitarian reinforcement and low-to-high informational reinforcement produced by buying or using a product) is an analytical category that takes the place in interpretive behaviorism occupied by the schedule of reinforcement in the experimental analysis of behavior (Foxall, 2010a). Because patterns of reinforcement differ and because informational reinforcement increases the complementarity of brands within a product category, nonprice elements of the marketing

mix come to the fore. The study of brand choice indicates that the multidisciplinary of behavioral economics can usefully be extended by the inclusion of results and perspectives from marketing research. Behavioral economics is supported by the research in that its analyses and conclusions are shown to apply to human consumers in situations of free choice; behavioral economists should appreciate, however, the conclusions of marketing researchers to the effect that most consumers are multibrand purchasers, and that marketing considerations other than price influence choice. Marketing researchers may need to take note of the import of price differentials in brand choice. The behavioral mechanism of choice that underlies the molar patterns of consumer choice depicted here appears to be momentary maximization of benefit, a result that is consistent with melioration or overall maximization. However, the lesson of the research is that brand choice is reinforced by two sources of reward: (a) *utilitarian*, which derives from the functional benefits of the good; and (b) *informational* or *symbolic*, which derives from the psychological and cultural meanings that goods acquire through their participation in social interactions and, by derivation, through advertising and other means to branding. The recognition of both sources of reinforcement is the key requirement for both marketing researchers and behavioral economists.

Consumer Demand Analysis

The point of the discussion of pattern of reinforcement and plasticity of demand is not to dismiss such stalwarts of economic analysis as elasticity of demand. Rather, having established the usefulness of the former types of interpretive construct to consumer behavior analysis, the aim should be to operationalize them and to demonstrate how they relate to the familiar constructs and methods of economic analysis and behavioral psychology (Oliveira-Castro, Foxall, & Schrezenmaier, 2006; Oliveira-Castro, James, & Foxall, 2007; Oliveira-Castro, Ferreira, Foxall, & Schrezenmaier, 2005; Oliveira-Castro et al., 2008; see also Foxall, Yan, Oliveira-Castro, & James, submitted). This has been one of the tasks of work on consumer demand analysis within the BPM context that has investigated the relationship between pattern of reinforcement (as the independent variable) and observed sensitivity to price changes (as the dependent behavioral variable). Hence, much of the work on demand analysis has involved comparison of the buying patterns of consumers grouped by their predominant purchasing of brands having specific patterns of informational and utilitarian reinforcement (Foxall et al., 2004; Foxall et al., submitted).

Observed decreases in the quantity bought with increases in prices, indicated by negative elasticity coefficients may be associated with different response patterns by different groups. The tendency to buy larger quantities when prices are lower may be related to one or more of the

following three patterns: (a) buying larger quantities of a product when its price was below its usual average price rather than when its price was above its average price (i.e., intrabrand or absolute elasticity); (b) buying larger quantities when buying brands belonging to cheaper, lower informational levels than when buying brands belonging to more expensive, higher informational levels (i.e., informational interbrand or relative elasticity); and (c) buying larger quantities when buying brands belonging to cheaper, lower utilitarian levels than when buying brands belonging to more expensive, higher utilitarian levels (i.e., utilitarian interbrand or relative elasticity). These phenomena have been investigated in studies employing different sets of consumer panel data that have borne out these extensions to matching analyses in the context of consumer choice (Oliveira-Castro, Foxall, & James, 2008; Oliveira-Castro, Foxall, & Wells, 2010; Oliveira-Castro, Foxall, & Schrezenmaier, 2005).

The possibility of combining matching and elasticity of demand analyses has led, most recently, to the testing of an equation that relates amount spent to quantity bought, utilitarian reinforcement obtained, informational reinforcement obtained, and price paid (which detects promotions). The results are highly encouraging for the view that economic demand is influenced, in addition to the amount purchased, by all three of the variables posited by the BPM—utilitarian reinforcement, informational reinforcement, and aversive consequences—and can be shown to influence amount spent (Foxall et al., 2007).

Experimental Analyses

Numerous studies in the experimental analysis of behavior are relevant to the development of consumer behavior analysis (see, i.a., Foxall, 2003). However, several recent approaches to the experimental analysis of consumer behavior are of particular interest to the progress of the model and research program. The first is the use of simulated shopping malls to test predictions of matching theory in a consumer context (DiClemente & Hantula, 2003a; Hantula, DiClemente, & Rajala, 2001). A series of experiments investigated the influence of various marketing elements (e.g., price and service level measured in terms of delay) on the spending behavior of buyers of consumer products (DiClemente & Hantula, 2003b; Hantula, Brockman, & Smith, 2008; Rajala & Hantula, 2000; Smith & Hantula, 2003). This work is significant not only for its contribution to consumer behavior analysis but also for its insights into the nature of economic psychology, i.e., the manner in which the all-too-often-separated disciplines of economics, psychology, and biobehavioral consumer research might be integrated. The integration is achieved in this case through foraging theory. Although it is only one of a number of important outcomes of this kind of investigation, the finding that the price of a product may be viewed as a temporal factor by which foraging

may be understood is valuable for further research that treats temporally extended consumption by humans in terms of foraging.

The constant need in experimental work that is designed to have some impact on the interpretation of complex behavior is to move gradually closer to empirical investigations of choice that permit field experimentation; in this way, the rigor of experimental manipulations and the links with the principles of behavior analysis can be retained, while the focus of research more closely resembles the kinds of day-to-day behavior exhibited by consumers in natural settings. An interesting approach to this is found in experimental work on the influence of the base price of products on the amount of time prospective consumers spend on search. Observation of consumers during the prepurchase phase of their purchase sequence not only permits in-store methodologies to be evaluated in the context of consumer behavior analysis but also yields the result that search behavior is more extensive for higher-priced items. In-store experimentation within the consumer behavior analysis framework has also been undertaken, as have simulated store choices to test the effects of both utilitarian reinforcement and informational reinforcement on consumer preference (Fagerstrøm, Arntzen, & Foxall, 2009a, 2009b; Fagerstrøm, Foxall, & Arntzen, 2010; Sigurdsson et al., 2009; Sigurdsson, Foxall, & Saevarsson, 2010; Sigurdsson, Engilbertsson, & Foxall, 2010).

DEVELOPMENTS

The original aim of the research program—to ascertain the epistemological status of a radical behaviorist model of consumer choice—has been fulfilled. Not only is such a model feasible, it provides unique interpretations of consumer behavior and permitted the prediction of such aspects of consumer choice as brand and product selection. In addition, it has explained such behaviors to the extent of identifying the contingencies that shape them—both utilitarian and informational reinforcement, and the scope of the consumer behavior setting. And conceptual research has succeeded in augmenting understanding of the consumer behavior setting by clarifying the relevance of motivating operations to consumer behavior analysis (Fagerstrøm et al., 2010).

Wider aspects of the explanation of consumer behavior have not proved amenable to this kind of theorizing, however. Certain features of this behavior, such as its continuity and its relationship to the personal level of explanation including subjective experience, require the use of intentional language and this implies a different mode of explanation from the extensional approach on which radical behaviorism is based (Foxall, 1999c, 2004b, 2007a, 2007b, 2007c, 2008a; Foxall & Oliveira-Castro, in press). The use of the BPM as an interpretive device is also enhanced by the incorporation

of intentionality. This does not mean that the original formulation of the model is superseded; it presents a means of predicting and potentially influencing consumer behavior that is not available from other sources. And it fulfills the expectations of a model of consumer choice that radical behaviorism itself would entertain. But the more general demands of consumer research as a social science can be implemented by the development of intentional and cognitive versions of the model (Foxall, 2007b, 2008a). The main point of these developments is to ascertain the nature of intentional and cognitive explanations of consumer choice, respectively, a program that parallels the original aim with respect to behaviorist explanation. As a part of this quest, the application of the BPM to new areas such as intertemporal decision-making, compulsion, impulsivity, and addiction continues apace (Foxall, 2010a, 2010b). The integrating factors in the search for a unified theory of consumer choice include neuroeconomics and picoeconomics, and a general exploration of the role of neurophysiology in the explanation of consumer behavior (Foxall, 2007a, 2008b; Foxall & Yani-de-Soriano, in press).

The nature of the marketing firm remains at the forefront of current theoretical and practical work (Xiao & Nicholson, 2010; Wells, Chang, Oliveira-Castro, & Pallister, 2010). Consumer behavior analysis offers to enhance our understanding of the strategic behavior of the firm, something that behavioral economics (insofar as it is conceptualized as a derivative of experimental economics and behavior analysis) has scarcely touched upon; nor have marketing managerial considerations, especially as they are related to the overall governance of the economic enterprise, been addressed. Consumer behavior analysis, with its unique *ménage* of economics, psychology, and marketing is well placed to answer these concerns. A beginning has been made with an outline of *the marketing firm* (Foxall, 1999a) that seeks to formulate the substantive functions and contributions of marketing management and the theory of the firm in terms of behavior analysis and behavioral economics. The firm emerges as necessarily a marketing enterprise, the goals of which are to influence consumer demand by the closure of the consumer behavior setting and the manipulation of patterns of reinforcement. Xiao and Nicholson (2010) extend this thinking into a specific area of consumer and managerial interactivity. Consumer behavior analysis is poised to make a strong contribution to understanding the nature of the firm and of producing a theory of the firm to stand alongside those of economics and behavioral science, one which uniquely emphasizes the concerns of marketing and strategy, which have traditionally been the focus of management and marketing science.

The extension of the philosophy of science underlying consumer behavior analysis clearly is a major preoccupation of the CBA research program. As mentioned at the outset, the purpose of the program has been

overwhelmingly epistemological: to discover the extent to which behavior analysis could provide a convincing explanation of consumer choice in the context of the affluent marketing-oriented economy. The strategy was to build simple models of consumer behavior based on unreconstructed radical behaviorism and to test them, first by exploring their interpretive capacity and later by reference to new empirical research. Whether radical behaviorism would succeed wholly in the task of explaining complex choice was always an open question, but the order of procedure began with the assumption that it be tested on its own merits to the full. Additional strands of explanation would be incorporated only as required (Foxall, 1996). The answer as to whether radical behaviorism can provide the lead to the accurate prediction of consumer choice is positive. The common tie provided by the principle of “selection by consequences” (Skinner, 1981) brings strength to this approach to consumer research. The BPM, like behavior analysis and natural selection, is a selectionist system: the integration of all three into a standpoint from which to explain consumer choice promises to provide a major area within both the theoretical and the applied analyses of human behavior. Therefore, the philosophical and theoretical development of CBA requires deeper understandings of evolutionary theory as a foundation for its explanations of consumer choice (Foxall, 2007a, 2010a). Nicholson & Xiao (2010) provide a critical approach to the place of evolutionary psychology in a behavior analytic account of consumer and marketer behavior.

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