



Foundations of consumer behaviour analysis

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***Abstract.** This essay reviews the course of consumer behaviour analysis, a research programme that employs the findings and principles of behavioural research to elucidate consumer behaviour and marketing management. Although attempts have been made from time to time to integrate a behaviour analytic perspective into marketing research, the tendency has been to concentrate on the potential contribution of operant psychology to managerial practice rather than to examine the potential of behaviourism to provide a theoretical basis for marketing and consumer research. Moreover, concentration on research with animal subjects has severely limited the relevance of behaviour analysis to marketing. The essay therefore pursues three themes: (1) to explicate recent developments in behaviour analysis, such as the analysis of verbal behaviour; (2) to take account of work by behaviour analysts on economic choice and to apply its lessons to understanding consumer behaviour and marketing action in naturally occurring environments; (3) to establish the requirements of an interpretive approach to consumer behaviour and marketing which is not limited to an experimental analysis of choice. **Key Words** ● behaviour analysis ● behavioural economics ● consumer behaviour ● consumer theory ● marketing management*

Consumer behaviour analysis is the use of behaviour principles, usually gained experimentally, to interpret human economic consumption. It stands academically at the intersection of economic psychology on one hand, and marketing science – the study of the behaviour of consumers and marketers, especially as they interact – on the other. Whilst behaviour principles are central to its theoretical and empirical research programme, its quest to interpret naturally occurring consumer behaviours such as purchasing, saving, gambling, brand choice, the adoption of innovations, and the consumption of services raises

philosophical and methodological issues that go beyond the academic discipline known as the 'experimental analysis of behaviour' or 'behaviour analysis'. Moreover, since the usual approach of consumer researchers and marketing scientists to explain and predict consumer behaviour is still overwhelmingly cognitive in scope and procedure, it goes beyond the current interests of most academic marketing. It is, nevertheless, of vital concern to both marketing and behaviour analysis.¹

Were consumer behaviour analysis a mature research programme, it would be possible to present here an almost definitive account of its nature and scope. That it is enjoying its inaugural phase has two implications: first, for the selection of reviewed literature and, second, for the scope of this essay. As far as the selection of literature reviewed is concerned, a rather wide range of publications must be included simply because the scope of consumer behaviour analysis is not yet fixed: diversity of materials and viewpoints is an essential element in the intellectual adventure and what will prove central and what merely useful has yet to be established. The implication for this foundational essay is that it consists largely of points and arguments aimed at encouraging the working together of members of disparate scientific communities rather than a state-of-the-art account of how they have done so. Some of those points and arguments have already been made to some degree in the reviewed literature because they are essential at this stage in the development of consumer behaviour analysis. They need not be rehearsed here. The aim of this essay is also to describe the implications of consumer behaviour analysis for both marketing science and behaviour analysis and to suggest how the interaction of these communities can benefit both.

The behavioural basis of consumer choice

The intellectual concern that has inspired this research programme over the course of some 20 years is the role of behaviour analysis – which explains behaviour in terms of the consequences it produces, the rewards and punishments that are contingent upon it – in marketing and consumer research. At a superficial level, the issue is easily resolved: behaviourism, we are told, has been so effectively superseded by cognitive science as to be passé, an outmoded approach to social inquiry that no longer deserves consideration (cf. Baars, 1986; Gardner, 1985; Mandler, 1985). Indeed, the notion that all human behaviour might be reduced to simple stimulus–response (S–R) formulations, or even to the 'three-term contingency' of radical behaviourism which is the very realm of purpose and intention according to Skinner (1974), hardly rings true to social scientists of the 21st century.² It is scarcely relevant either to the behavioural psychology of the new millennium. In any case, consumer behaviour analysis is not an attempt to reassert the importance of behavioural psychology to the exclusion of cognitive or other perspectives on consumer choice. The philosophy of science that has underlain this programme, which may be summed up in Feyerabend's (1975) phrase 'the active interplay of competing theories', precludes any outright assertion of



one theory over another. Any advocacy of behaviour analysis derives from the need to make its voice heard among other voices rather than from an attempt to drown them out.

Then why behaviour analysis? What continues to fascinate and require the attention of social scientists is not only the persistence of behaviour analysis as an approach to psychology, but the conceptual and empirical development of facets of its research programme that are of central concern to understanding marketer and consumer behaviour. During the last decade, there has been a steady stream of development in both behaviour theory and its applications. Two aspects stand out: behaviourists' analysis of those features of human behaviour usually confined to cognitive psychology (thinking, problem solving, decision making, among others), and their analyses of economic behaviour, notably consumption. The analysis of verbal behaviour and behavioural economics lies at the heart of modern behaviour analysis, a discipline that shares little with the stereotyped behaviourisms of the past. The behaviour analysis of consumer choice is at present largely unknown among marketing researchers but promises to contribute strongly both theoretically and practically to marketing.

The key questions that underlie this enquiry are these: What form should a behavioural account of consumer choice take? And how ought such an account to be evaluated? These questions, which have not previously been asked let alone answered in marketing, are central nevertheless to the development of consumer behaviour and marketing as areas of theory and research. Their continuing pertinence stems from the observation that much consumer behaviour can be reliably related to its environmental consequences rather than its cognitive precursors and the realization that behaviour analysis and behavioural economics have much therefore to offer by way of an interpretation of consumer choice. Combining the interests of marketing scientists in consumer behaviour with the unique developments of behavioural psychology suggests benefits for both of the academic communities involved: the realization of those benefits is the task of *consumer behaviour analysis*.³

The possibility of a behavioural perspective on consumer choice and marketing entered the marketing literature during the 1970s and 1980s. Berry and Kunkel (1970) put forward a framework for understanding situational influences on consumer behaviour that derived from Homans's (1974) behavioural sociology. Berry and Kunkel portray the relationship between marketing in pragmatic terms – marketing is 'the analysis and satisfaction of the consumer–buyer in order to maintain and increase demand' (1970: 25) – and yet their analysis is equally based on the intellectual relationship between marketing and the social sciences. The capacity of this theoretical framework to engender useful as well as theoretically-relevant consumer research is illustrated in their further theoretical analysis in a marketing context (1968) and in Berry's investigation of the components of department store image (1969) and his study of the image concept in the context of bank marketing (1968).

Some ten years after Berry and Kunkel's pioneering article, several others that were important for the relationship between social science and marketing

appeared. Nord and Peter (1980) presented an overview of various schools of behaviourist thought and their possible relevance to marketing *practice*. A year later, Rothschild and Gaidis (1981) entered the arena, again proposing pragmatic applications of behavioural psychology to marketing and promotions. In addition to their explicit de-emphasis of any theoretical or explanatory role for behaviour analysis in marketing, both articles confined their expositions to forms of radical behaviourism at least that were by then outdated. They concentrated on the principles of behaviour analysis derived from the animal laboratory, on the *contingency-shaped* behaviour that is simply the result of organisms coming into contact with the reinforcing and punishing consequences of their actions. This was transferred to the marketplace behaviour of human consumers and marketers without comment. Yet, at least since 1966, even the radical behaviourism of Skinner had recognized that human behaviour is predominantly *rule governed*, subject to the verbal instructions of other people and the propensity of the individual to follow them (Skinner, 1966). Behaviour analysis had taken on the ground previously ceded to cognitivists. Even the accounts of contingency-shaped behaviour presented by these articles required clarification, some of which arrived in Peter and Nord's supplementary article (1982). But the real question to be answered before behaviourism could be relevant to the analysis of consumer choice was: What is the effect of verbal behaviour, which modifies the effects of the actual consequences of behaviour by substituting promises, threats, advice and other forms of *rule*. Berry and Kunkel had, a decade earlier, taken *norms* into consideration in their portrayal of a behavioural consumer psychology and these provided an approximation of what behaviour analysts were referring to as *rules*. But there was no mention of this in the early 1980 versions of behavioural consumer psychology. Foxall (1988) sought to rectify this, introducing into the debate experimental work which showed how language could modify individuals' sensitivity to 'the contingencies'. The need to bring marketing researchers' notion of behaviour analysis up to date by emphasizing the unique modes of inquiry that had proceeded from behaviourists' analysis of human behaviour, notably verbal behaviour, and the role of behavioural interpretation in understanding consumer choice lay behind this article. The fundamental themes of consumer behaviour analysis were further pursued by Foxall (1986) which draws particular attention to the critical-comparative role of behaviour analysis in a consumer research tradition that is heavily and often uncritically cognitive.

From the outset, the aim of consumer behaviour analysis was to put the somewhat optimistic notions that behaviour analysis might be relevant to consumer research and marketing science to stringent test. The possibility that a behaviour analytic *interpretation* of real-world human consumption could be constructed and used in this context was enthusiastically but critically accepted as a starting point for the required research programme. As Foxall (1986) makes clear, the evaluation of any such interpretation, especially in terms of its value to marketing research, was from the beginning as central to the programme as the creation of such an account. In grounding consumer behaviour analysis in both academic marketing (including consumer research) and behaviour analysis, it is necessary



to say a little about what each of these disciplines can hope to gain from the proposed fusion.

Relevance to marketing

The source of concern for marketing is its very success, albeit within a specific methodological framework, for the narrowness of its theoretical position is a potential weakness. The supremacy of cognitivism means that this prevailing paradigm often goes unchallenged. This supremacy nevertheless reflects the meteoric rise of cognitive science more generally and is perhaps inevitable given that an applied field is likely to assume the general metatheoretical characteristics of the dominant paradigm in the 'parent discipline'. However, the reliance of consumer research on cognitive models betrays also a disciplinary myopia, a failure to see and appreciate developments in behavioural psychology. Consumer researchers' adoption of intentional explanation as a central explanatory core has had important consequences for the growth of knowledge in the subject area (Kardes, 1994). It is not that one wishes to argue with that basis of explanation per se, but that its uncritical acceptance obscures other views and avoids the kind of clash of theoretical positions that is necessary to, if not sufficient for, the growth of knowledge. At the same time, consumer research generally ignores recent developments in behaviour analysis or belittles them by engaging with an outdated behaviourism and applying it merely to the derivation of rules for retailers and others concerned with promotional tactics. There is little appreciation, for instance, among marketing researchers – as among social scientists generally – that behaviour analysis positively encourages introspective methodologies, and can readily accommodate, perhaps even actively inspire, postmodernist and social constructivist approaches as well as interpretivist and hermeneutical analyses (Cautilli et al., 2000; Chandler, 1993; Dougher, 1993; Hayes et al., 1999; Moore, 1999; Moxley, 1999). Behaviourism has been a central arena for the forging of psychological views of mankind; the erroneous view that it has been superseded in some kind of Kuhnian revolution (Kuhn 1970a, 1970b) reflects an inaccurate philosophy of science and removes from consideration the important work on behavioural economics and the economic psychology of consumption that is highly relevant to consumer research and marketing.⁴

Given the need for a clash of competing theories, the first theme of consumer behaviour analysis is the need for a genuinely *interdisciplinary* approach to consumer choice that reflects the concerns of both consumer researchers (who are found predominantly but certainly not exclusively within business schools and marketing departments) and behaviour analysts who have developed a unique approach to the study of consumer behaviour. The work of each of these groups is highly relevant to that of the other; yet – as we noted at the outset – they proceed for the most part in isolation from one another. The reason for this stems largely from the disciplinary boundaries each academic community places upon itself. Consumer research within the business area is not only mainly cognitive: it is almost exclusively non-experimental in its methodology. These are obvious

barriers to collaboration with a non-cognitive, experimental science. But consumer researchers are in touch with a level of observation and analysis that is frequently ignored by behaviour analysts: the 'complex' behaviour of consumers whose purchase and consumption activities are not amenable to laboratory analysis. The aim must be to explore the interaction and comparative evaluation of cognitive and behaviour analytic accounts of consumer choice.

As a result of these disciplinary limitations, there is almost no coherent account of consumer behaviour (in marketing or elsewhere) as situationally influenced. There simply is no developed alternative contextual standpoint from which to conduct a critique of the prevailing cognitivist view of consumption. In order to rectify this, consumer behaviour analysis relies strongly on an inter- rather than merely multidisciplinary approach. The relevant disciplines include elements of marketing and consumer research, psychology and economics, to say nothing of their interactions such as consumer psychology, economic psychology, psychological economics and behavioural economics, each of which has an intellectual agenda of its own. Each has, for instance, its own perspective on theory and methodology, the interpretation of complex behaviour and applications to management and policy making. While the task of melding all these viewpoints into a single perspective is immense, therefore, it is clear that at a more modest level the proponents of these various approaches have much to learn from one another.

Marketing research, for instance, remains largely uninformed by work on consumer behaviour by behaviour analysts, even though this work has profound implications for the ways in which consumer choice and marketing action are comprehended. Mention of behaviour analysis in the marketing literature is usually confined to the supposed relevance of operant conditioning to the promotional tactics of retailers. Critical awareness of its philosophical basis or the theoretical and methodological implications of its adoption as a theoretical device generally go unappreciated and it is rare for the merits and demerits of behaviourism as a philosophy of psychology to be debated and for its contribution to consumer psychology and marketing to be assessed.

Marketing is an application area for the social sciences that strongly supports the view that science progresses not by the imposition of paradigmatic straight-jackets that are the outcome of Kuhnian revolutions but by the freedom of researchers to attack and undermine the normal science component of the subject which, though powerful, is never fully capable of extinguishing its competitors. This idea of paradigmatic proliferation is central to consumer behaviour analysis. Hence a central component of the model has been the need to use competing concurrent theories of behaviour as standpoints from which to critique one another: the growth of knowledge in the social sciences appears to require this kind of clash of paradigms. Besotted as we are with Kuhn's notion of paradigmatic supersession, we see the intellectual world as a series of mutually inconsistent, even incommensurable, theoretical and methodological systems. There is doubt even whether the world of physics proceeds in this manner: although Kuhn apparently based his system on scientific revolutions, others such as Feyerabend have disputed it. Feyerabend (1970: 211) writes that



According to Kuhn mature science is a *succession* of normal periods and of revolutions. Normal periods are monistic; scientists try to solve puzzles resulting from the attempt to see the world in terms of a single paradigm. Revolutions are pluralistic until a new paradigm emerges that gains sufficient support to serve as the basis for a new normal period.

Normal science for Kuhn consists in the production of knowledge within a tenaciously held worldview socially defined by the paradigm that defines normal science. The proliferation of alternative theories occurs only at the times of crisis that precede revolutions. But for Feyerabend (p. 212),

A little imagination and a little more historical research ... shows that proliferation not only *immediately precedes* revolutions, but that it is there *all the time*. Science as we know it is not a temporal succession of normal periods and of periods of proliferation; it is their *juxtaposition* ... Kuhn has conjectured that mature science consists in the *succession* of these two different patterns of thought and action ... I suggest in accordance with Lakatos's model that the correct relation is one of *simultaneity* and *interaction*. I shall therefore speak of the normal *component* and the philosophical *component* and not of the normal *period* and the *period* of revolution.

How appropriate, then, that the fundamental questioning of the role and usefulness of the cognitive paradigm in marketing came from within that subject matter in the form of a strong argument by Olshavsky and Granbois (1979) that consumer decision making might in fact be more fiction than fact.

The role of behaviour analysis

It is equally true that behaviour analysts working on economic behaviour – self-styled ‘behavioural economists’ – proceed in apparent ignorance of the nature of consumer choice in natural settings. Most behavioural economic work has used rats and pigeons as its subjects and, although this is to some degree a defensible approach, it has serious disadvantages when behavioural economists generalize from their work in the laboratory to what they take to be the realities of, say, supermarket shopping. Their omission raises, as we shall see, far-reaching problems for the interpretation of complex human behaviour – i.e. that which is not amenable to a laboratory analysis – such as purchasing and consumption in terms derived from behaviour analysis.

The concern for behaviour analysis stems from its need to produce an acceptable *interpretation* of complex behaviour that transcends its experimental analyses by plausibly demonstrating that purchase and consumption and related phenomena are reliably under the control of their consequences and the antecedent events that signal them. This interpretive element of behaviour analysis which links experimental results with a behavioural level that is not amendable to laboratory investigation is still generally ignored by behaviour analysts: certainly there is no systematic attempt to provide a framework for interpretation that can be subjected to anything approaching the rigour with which experimental activity is designed, conducted and evaluated.

Skinner (1969) clearly recognized the importance and challenge of providing an account of complex human behaviour that lies beyond the rigorous analysis available for simpler activities in the laboratory. Scientific laws derived from the study

of behaviour that occurs in less complicated situations should be capable of extension to broader patterns of social and economic performance. It would almost certainly prove impossible to ascertain the contingencies that control response rate – the basic datum of the experimental analysis of behaviour – with the precision available to the laboratory scientist who can assiduously define and control both behaviour and the environmental variables of which it is a function in the experimental context. Behaviour analytic interpretation doubtless requires that if we use the terms dependent and independent variables at all we understand them in a different way. But it also demands that rather than simply throw the terms ‘antecedents’, ‘behaviour’ and ‘consequences’ around ad lib (or even worse, that we disburse their technical counterparts such as ‘discriminative stimuli’, ‘response’ and ‘reinforcers’ in so callous a manner), we devise acceptable definitions for empirical research that permit the rigorous testing of our interpretation in as scientific a manner as that of the experimentalist.

Whatever the challenges involved, it is then incumbent on behaviour analysts to generate a ‘plausible account’ (Skinner, 1957: 11) of complex relationships between environment and behaviour that characterize the social and economic interactions in which consumers are daily engaged. The status of such an account may, as he pointed out, be that of ‘interpretation’ rather than ‘explanation’; it may be ‘merely useful’ rather than ‘true or false’ (though this is surely as true of any other form of behaviour analytic research, given the pragmatic philosophy of science that guides it); it is preferable, nevertheless, to accounts that are unsupported by experimental investigation (Skinner, 1969: 100; see also Skinner, 1974: 226–32; 1988: 208).

If behaviour analysis cannot do at least this, it remains a laboratory-confined science, the scope of which is delimited by the boundaries of the experimental space in which it operates. Behaviour analysis is clearly more than this, as even brief perusal of the experimental and applied literatures demonstrates. Moreover, the ways in which behaviour analysts have sought to demonstrate the wider validity of their science have taken several forms, each of which is instructive in the search for a suitable methodological framework for behavioural interpretation. Skinner’s own style was often to make broad interpretations of complex social phenomena that were bold and imaginative for their time but which revealed themselves to be somewhat simplistic as one moved from the confines of behaviour analysis to the social science disciplines whose members specialized in the domain of behaviour under construal. His accounts of social, economic, religious and political behaviour found in *Science and Human Behavior* (Skinner, 1953), for instance, are admittedly conceivable but vague and untestable diversions into spheres where the basic knowledge available to the specialist practitioner immediately raises issues to the resolution of which the specialist in behaviour analysis cannot usually hope to contribute. This approach culminated in his benignly-intended but terrifying design of an entire culture along lines of operant political management (1971) that were untested at the time of his exposition and which remain untestable. The issue illustrates an inevitable problem for behavioural interpretation. Extrapolation of this kind provides a



broadly-based starting point for a detailed interpretive analysis but it is ultimately doomed by its *implausibility* to all but true believers. They invite the criticism that they are no more than 'vague analogic guesses' (Chomsky, 1959).

Interpretation of this kind fails to contact the complex realities of consumer choice as it actually takes place in marketing-orientated economies and social systems, subject to interpersonal influences and marketer action through advertising and the remainder of the marketing mix. The required interpretive stance must make consistent sense of the complicated and often ambiguous relationships we observe daily in the market place by reference to the regularities of behaviour and environment observed in more clear-cut contexts. The experimental analysis of behaviour is obviously of central relevance to this task. But so is a means of incorporating the empirical realities of consumer choice in the real world into our interpretive framework. Fortunately, the broad-brush approach has not been the only attitude shown by behaviour analysts towards interpretation and intervention. And its alternative lines of attack are most instructive to those engaged in the task of finding the necessary linkages between laboratory and life.

Patterns of consumer choice

Even at its most theoretical, consumer behaviour analysis stands firmly on the empirical designation of consumer choice. Consumer choice in the real world and its managerial implications stand in opposition to so much that is found in prescriptive accounts of marketing. Take brand choice and consumer loyalty, for instance. In direct contrast to the simplistic nostrums found in the archetypal textbook for increasing loyalty to brand or store, the realities of choice turn out to be rather less encouraging of managerial intervention of the prescribed kind. The evidence on aggregate patterns of brand purchasing within a product category is that complete loyalty is rare: most consumers buy several brands in the course of even a three-month period and, in a period as long as a year, sole purchasers of a brand are few and far between. In addition to multi-brand purchasing, most consumers patronize several stores even to obtain the same brand. Uncles et al. (1995) provide a short account of this work and its major conclusions (see also Ehrenberg and Scriven, 1999), while Ehrenberg et al. (1990) describe the double jeopardy phenomenon in which brands which attract relatively few consumers suffer additionally in so far as the consumers they attract tend to buy less than the average consumer. These phenomena are relevant to the operant interpretation of brand loyalty patterns (see Foxall, 1999b). The Dirichlet model receives a more detailed exposition by Goodhardt et al. (1984). The implications of these fundamental findings for each element of the marketing mix are addressed in a series of papers which deal in turn with *product* in the form of new brand marketing (Ehrenberg et al., 1994); *price and promotions* as they impact brand differentiation (Ehrenberg, 1986; Ehrenberg et al., 1994); and *distribution* in the form of studies of store loyalty, and loyalty programmes (Ehrenberg and England, 1990; Sharp and Sharp, 1997; Uncles and Ehrenberg, 1990).

More interesting in the current context, the striking result of Ehrenberg's



findings is the possibility they raise of dispensing with cognitive explanation or, at least, complementing it with a behavioural analysis. The Dirichlet raises the opportunity to predict brand choice in the aggregate without a corresponding need to posit information processing as the guiding force producing continuity of individual response; as Dall'Olmo Riley et al. (1997) show, such processing, as indicated by consumers' attitude statements, appears far from consistent even in the short term (cf. Foxall, 1997b). Ehrenberg (1995) sums up the methodological approach and argues for the value of empirical generalizations in consumer research. The conclusion is that, 'not only is the Dirichlet one of the best and most well-established of empirical generalisations in marketing, it is also a vital tool in marketing analysis'.

In line with the more provocative note struck by the questioning of the central position of cognitive decision making in accounts of consumer behaviour and marketing response (e.g. Foxall, 1983, 1990; Olshavsky and Granbois, 1979), the need for a more concentrated examination of the effects of environmental influences on consumer choice ought to assume priority status in consumer and marketing research. An obvious place to look, albeit critically, is the behavioural economics of brand choice.

The behavioural economics of consumption

One response to identified empirical generalizations is simply to live with them. If, in the medium to long term, they remain impervious to attempts at intervention and modification – as Ehrenberg et al. (1994) suggest – they may simply have to be taken into account as constants that act as constraints on how marketing and economic policy can be pursued. However, marketing practitioners are by definition pragmatists who are inclined towards acting on consumer behaviour to effect change; often marketing scientists share this disposition in their capacity of applied researchers; behaviour analysts are on the whole resolutely pragmatic. It is, in any case, intellectually satisfying to know *why* empirical regularities take the form they do and such understanding is inevitably the starting point of any programme of intervention. Justifications for animal experiments in the study of consumption is provided by Kagel (1987; see also Foxall, 1990; Lea, 1981). The import of this work for consumer researchers is the light it shines on the non-verbal explanation of consumer choice (the animal research) and the extent to which this level of analysis is adequate for the analysis of the consumer behaviour of humans who are all too verbal. Other research in this vein deals with the experimental analysis of human consumer behaviour in token economies, and social marketing, specifically the field-experimental approach to consumption that is potentially ecologically harmful, provides a strong counterpoint to the work which has exclusively used animals. Together, these research programmes tell much about the need for and nature of a behaviour analytic account of human consumer choice.



Behavioural economics versus matching theory

Several studies can be identified as central to the work and worldview of behavioural economists and other behaviour analysts (Baum, 1979, 1981; Foxall, 1999b; Green and Freed, 1993; Herrnstein, 1970, 1990; Hursh, 1984; Kagel, 1987; Lea, 1978; Pierce and Epling, 1983). Investigations that involve animals as subjects are nothing out of the ordinary in experimental psychology: they are a world apart from the kinds of research usually undertaken by marketing scientists. But they are pertinent nonetheless to the goal of consumer behaviour analysis: the establishment of an approach to (human) consumer behaviour that relates it to its situational influences, its environmental determinants, its context. The aim is not to remove cognitive explanations from the landscape of consumer research but to appreciate them vis-a-vis behaviour analytic accounts, to understand the relationships between both of these epistemological systems as they bear on consumer research. The experimental analysis of animals' economic behaviour – while not something that marketing scientists are likely to engage in themselves – sets limits to the kind of interpretation that consumer behaviour analysis is attempting to build. It sets limits for instance to cognitive explanation and shows the contexts in which an environmentally-based system of explanation applies full well. It sets limits on the capacity of the concepts and methods of economics to elucidate the economic behaviours of human consumers. As a result, it is a main-spring to further analysis of consumer behaviour in the human sphere. (For examples of original work, see Battalio et al., 1973; Battalio et al., 1987; Kagel et al., 1975; Rachlin et al., 1976).

An originator and leading exponent of behavioural economics, Hursh (1980, 1984; see also Bauman et al., 1996) argues that the behaviour–environment relationships observed by operant psychologists can be construed as economic in nature. He argues that experimental situations are economic systems, that economic constructs such as demand elasticity can be instrumental in the definition of reinforcers, that the complementarity and substitutability of economic goods are properties that can be ascribed also to reinforcers, and that the choice rules attributed to consumers are multidimensional. An important distinction made by Hursh is between economic systems that are *open* (those in which the animals could obtain food not only during the experimental sessions but between sessions) and those that are *closed* (in which food was obtainable only during the experimental sessions). These economic characteristics – which actually represent the polar extremes of a continuum of experimental procedures – produced quite different patterns of responding on the part of the experimental subjects. In the case of an open economic system, rate of responding is found to be inversely proportional to 'price', the schedule requirement for reinforcement. 'Demand curves' relating responses to schedule parameters are downward sloping: rate of responding falls as the schedule value increases. Demand is elastic for the non-essential commodities typically studied in such systems, where there are competitive sources or supply.

In the case of a closed system, however, the reverse is observed. Demand curves

are upward sloping: the rate of responding increases with the schedule requirement. Demand is inelastic for the essential commodities like food that are typically studied in such contexts, in which no other source of the commodity is available apart from responding in the experimental sessions. Responding depends on more than the contingent availability of reinforcement and the way in which response rate and reward are related: it depends on the 'income' of the animal (whether its stock of feeding responses is limited to those it can emit in the experimental session), the elasticity of demand for food in the experimental session (which is influenced by whether or not food is available outside the session), and whether substitute commodities are available. The claim of behavioural economists is that behaviour analysis alone is insufficient to explain economic choice; additional concepts from microeconomics are also required. (For developments in this approach, cf. Hursh 1980, 1991; Bauman et al., 1996.)

Lea (1978) considers the debates between economists and psychologists pertaining to human consumer choice as well as that of animals. He compares the whole analogy between the demand curves of economists that show the quantity demanded of a commodity as a function of its price to the psychological demand curves we have just been discussing which relate response rate to the requirements exacted by schedules of reinforcement. He compares the evidence from research with rats and monkeys with that available from retailing experiments, econometric studies, buy-response analyses, and token economies. Lea also raises the central axiom which separates operant psychologists' view of what accounts for behaviour from that of economists – the ascription of rationality to the decision maker. (See Lea et al., 1987, for a thorough introduction to economic psychology based on the disciplinary interaction of economics and psychology.)

The controversy that has long surrounded economists' assumption that consumer behaviour maximizes utility is far from over. In the past, distinguished economists such as Friedman (1953) argued that maximization was a feasible assumption as long as it contributed to predictive accuracy, equally distinguished behavioural scientists such as Simon (1959) decried the lack of empirical support for the assumption and argued that consumers, like other economic actors, are content to achieve a satisfactory rather than maximal level of return for their efforts, i.e. to *satisfice*. The advent of experimental economics brought empirical data to bear on the question of maximization through controlled studies of animal behaviour in which responses (key pecking or bar pressing) are analogous to *money*, food pellets or other items of reward to *goods*, and the ratio of responses to rewards to *price*. Two intellectual communities have grown up around this research, each associated with its own set of conclusions: the behavioural economists, exemplified by Kagel et al. (1995), whose experiments satisfy them of maximization, and the behavioural psychologists, exemplified by Herrnstein (1970), whose work provides them with evidence for *melioration*.⁵ A more precise formulation than satisficing, melioration refers to the choice of whatever option (e.g. one of a number of products) provides the consumer with the greater/greatest immediate satisfaction; while he or she can be said to maximize returns at each choice point in a sequence of purchase decisions, there is no reason to expect



that the behaviour involved will maximize overall return as economic theory predicts. Matching theory has reached heights of analytical sophistication (see Baum, 1979). Despite protracted debate, no solution to the problem has been found which satisfies both camps (Baum, 1981 presents one summing up among many; cf. Herrnstein, 1990; Rachlin, 1980). It would be satisfying to leave the protagonists, as Guthrie characterized Tolman's rats, 'lost in thought'. But the issues raised are important to the development of consumer behaviour analysis in that they show where and in what sense maximization may be said to occur, and raise implications for the explanation of human choice solely in terms of contingency shaping. Kagel's (1987) 'Economics according to the rats (and pigeons too): what have we learned and what can we hope to learn?' is especially illuminating.

Kagel provides an excellent overview of the merits and demerits of research using animals as subjects as well as examining this question of rationality in the context of the experimental evidence. He raises the possibility that optimization, implying a capacity to engage consciously in forethought need not be the actual mechanism by which either animals or humans reach decisions. Optimization might rather be a convenient description of observed behaviour attributed only by the observer who seeks explanation (cf. Rachlin, 1980). In line with an evolutionary account, we should look for explanation in terms of final outcomes rather than temporal mechanisms. Three volumes edited by Green and Kagel (1987, 1990, 1996) provide excellent examples of recent research in behavioural economics.

Another observation of interest to marketing scientists in particular is that failure to generate definitive experimental data has not deterred these behavioural scientists from suggesting, in the absence of any direct evidence, how the behaviour of human consumers is related to the system of rewards that ostensibly maintains it.

Green and Freed (1993) draw attention to several limitations of matching theory, notably that matching is found predominantly for close substitutes. This suggests that matching theory should be relevant to the kinds of multi-brand purchasing described by Ehrenberg and his colleagues (Ehrenberg et al., 1990; Goodhardt et al., 1984; Uncles et al., 1995) and Foxall (1999b) brings these two fields of research together. The implication drawn is that if brand choice is to be understood in terms of behavioural economics or matching theory, the idea of reinforcement needs to be extended to distinguish utilitarian benefits (deriving from the intrinsic sources of satisfaction provided by economic goods) from informational benefits (such as social status and self-esteem that derive from their ownership and consumption). This distinction – between on the one hand getting from A to B in one's car and being seen by one's peers as one drives one's Rolls Royce – finds strong echoes in the development and testing of the behavioural perspective model. Although Foxall (1999b) indicates some of the complexities inherent in attempting to reconcile matching and maximization theories with patterns of consumer choice, it should be noted that its aggregate level of analysis is at variance with the individual level usually employed in behaviour analysis and

behavioural economics. Work is now in progress to examine brand choice in terms of behavioural economics using data for individual consumers' sequences of purchases (Foxall and James, 2001).

Two further papers deal more explicitly with the relevance of research in matching theory and behavioural economics to the analysis of human consumption. Herrnstein (1990) provides an empirically-based report on the matching theory versus behavioural economics debate; his review of a variety of experiments involving animals and humans raises again the question of whether matching should be understood as a special case of maximizing or maximizing as a special case of matching. The debate has clearly not ended but it is one that consumer researchers as well as behaviour analysts and behavioural economists should consider. Pierce and Epling (1983) take a broad view of the evidence on whether matching applies to human choice. For recent experimental evidence on the influence of language on sensitivity to schedule effects, see Horne and Lowe (1993).

Token economies and social marketing

Several papers and books on token economic systems and social marketing speak eloquently for themselves as introductions to these subjects and summaries of the major research findings and the conclusions that may be drawn from them. I have commented elsewhere (Foxall, 1990, 1994, 1998a) on the implications of several aspects of this research for consumer behaviour analysis and marketing management. Here, I would like to note several key studies briefly and to discuss the major conclusions that may be drawn from these research programmes for the behaviour analytic interpretation of consumer choice.

Kagel (1972) introduces the theme of token economic research in the context of an extension of experimental economics, and Tarr (1976) discusses the implications of the research for economic theory (see also Winkler, 1980). Kazdin (1983) also presents an evaluation of the early work in this field, notably as it impinges on psychology and clinical interventions. And Battalio et al. (1974) specifically apply the findings of a single major experiment to consumer research issues.

Several studies summarize the contribution of behaviour analytic/behavioural economic research to social marketing which has taken the form for the most part of empirical studies that have attempted to promote prosocial consumer responses with respect to actions that spoil the natural environment or deplete its resources. Providing continuity with the theme of behavioural economics, Winkler and Winett (1982) look at resource conservation from this viewpoint. Cone and Hayes (1977) present a comprehensive overview of their own work and that of other researchers in areas that include transportation, waste disposal and domestic electricity consumption. Geller (1989) makes the first attempt to relate this research to considerations of social marketing, that is interventions based on the managerial manipulation of product, price, promotion and place variables.

These findings of field experiments by applied behaviour analysts in (1) token



economies and (2) ecologically-impacting consumption are relevant to the quest for a behavioural interpretation of consumer choice and for managerial interventions. In token economies, individuals who are typically inmates of a closed system such as a hospital ward, prison or school can earn *tokens* in the form of points or money or vouchers by performing specified prosocial actions. What makes such contexts relatively closed is that they are managed by individuals who are not themselves subject to the contingencies they impose, that access to certain reinforcers is controlled by those individuals, and that other participants in the system must perform certain specified tasks in order to gain access to those reinforcers; moreover, the inmates are not at liberty to leave the system without express permission. The tokens are exchangeable for goods or privileges not otherwise obtainable. The evidence suggests that token economies are a most effective source of behaviour change, again because the behaviours in question are closely definable and their determinants can be unambiguously denoted and related to the behaviours that produce them. However, it is interesting from the point of view of delineating the nature of a behavioural interpretation, that their effects are seldom transferable to the wider community once the inmate has left their confines. The ward, penitentiary, or classroom are all *closed behaviour settings* in that the contingencies are under the control of managers or researchers who are not themselves subject to them; moreover, only one behaviour (or at most a few behaviours) lead to each specified reward. A feature of the wider society such as the home or community is, by contrast, a relatively *open behaviour setting*. They present many competing behaviours all of which are well rewarded; moreover, the immediate choice of one or other of these behaviours is usually under the control of the individual rather than other agents.

Field experiments in ecologically-impacting consumption have usually taken place in more open settings than those of the token economy (Davey, 1981). Individuals have some measure of discretion over whether they will participate in the schemes offered them; they are presented with a choice of contingencies leading to a range of competing reinforcers; they are involved in making the rules that govern their conduct. The research projects in this sphere have involved efforts to modify consumers' use of scarce resources such as fossil fuels and water, to avoid damaging the environment by disposing of waste in public places, and to use public or shared transportation rather than owner sole-occupied cars. Such work has again demonstrated the relationship between behaviour and its consequences predicted by behaviour analysis on the basis of its smaller-scale experimentation but hardly with the precision available in the operant laboratory or relatively closed spheres of application. As a result, while the results of such field experimentation are suggestive of policy interventions they can scarcely be said to provide as certain a technology of action as the token economy.

Both token economic studies and social marketing research also support the view that the concept of reinforcement requires modification in the area of human economic consumption. The distinction between utilitarian (originally 'hedonic') and informational (or symbolic) reinforcement (Foxall, 1990) stems from laboratory work on human response to the direct, primary sources of reward

for repetitive tasks (points, small sums of money or pieces of food, for instance) and to the more indirect, secondary sources of performance feedback (say, information relating to number of points earned or amount of money obtained). In many cases the latter were found to have a strongly motivating effect on performance, even though the former seemed to have little, if any, reinforcing effect on behaviour (Wearden, 1988). There are obvious parallels in economic behaviour in which conspicuous consumption, for instance, is socially rather than economically or technically mediated and 'informational reinforcement' is clearly related to the performance feedback in the form of social status or self-esteem rather than the direct utilitarian benefits of purchase or use.

Token economies employ symbolic rewards (the 'tokens' by which they are named) which indicate publicly and privately the performance levels met by the participant: their ultimate meaning derives from their being exchangeable for primary rewards such as extra food or privileges. In the social marketing field experiments conducted by applied behaviour analysts make use of the concepts of both performance feedback or informational reinforcement (in the form, for example, of records of the amount of electricity consumed or its cost) and direct utilitarian benefits or incentives in the form of money or reduced prices. Each of these sources of reinforcement has its own effect on behaviour, depending on the kind of product involved and the situation; the most effective results may occur when utilitarian benefits and informational reinforcement act alone, or when they are employed in tandem. The most relevant combinations of these sources of reward appear to be related to the patterns of consumer behaviour predicted by the behavioural perspective model and suggest social marketing practices aimed at modifying ecologically deleterious consumption. In the spirit of both behaviour analysis and of much academic (as well, of course, as practical marketing management), the consumer behaviour analysis research programme has had pragmatic outcomes.

The literature I have noted shows a progression from (1) the behavioural economics of animal consumption, through (2) the matching and maximizing debate, to (3) the effects of language on sensitivity to schedules of reinforcement, and (4) the roles of various patterns of antecedent and consequent stimuli on behaviour in human institutions. The first of these themes indicates the rigour of the individual studies and their relevance to economic analysis of choice, as well as articles that summarize and draw overarching conclusions from this kind of work that point towards the economic analysis of human consumption in similar terms (Kagel, 1987). As Hursh (1984) demonstrates, the lesson of behavioural economics is that some phenomena produced in the course of behaviour analytic research can be understood fully only through the concepts and analytical procedures of microeconomics. Response rate is not predictable from knowledge of schedule parameters alone: in the case of choice experiments in particular, the nature of the reinforcers involved – e.g. whether they are substitutes or complements – must also be taken into account.

The analysis of matching and maximization is particularly relevant to this theme and Pierce and Epling's (1983) paper is very pertinent indeed to the issue



of what makes human economic behaviour different. The role of language (or verbal behaviour) is central to this discussion. Finally, articles concerned with token economies and social marketing illustrate further the unique facets of human choice and the required interpretation to deal with them. It is to these that we turn now in the context of the role of behaviour analytic research in consumer behaviour analysis.

Behavioural decision making

Olshavsky and Granbois (1979) neither concluded finally that the cognitive consumer was a myth, nor advocated a behaviour analytic approach to marketing and consumer research. But their expression of dissatisfaction with the prevailing cognitive model at about the time that a behavioural perspective was also being put forward in the marketing and consumer research literatures invited further inquiry along the lines of this alternative approach to economic decision making (Fantino, 1998a, 1998b). Behaviour analysis and in particular its exponents in the sub-discipline of behavioural economics also stood to benefit from the mutual interest thus expressed – as Lacey and Rachlin (1978) argue (see also Rachlin, 1989).

Something that the behavioural economics research does not do is to analyse *markets* in terms of reciprocal reinforcement contingencies. In fact, its analysis is confined to the behaviour of consumers in relation to price; it does not examine that of producers in relation to price or examine price as a signal about what and how much to produce and for whom. These are marketing issues and the science and technology of behavioural economics are not sufficient to deal with it. (Or, if the analysis of labour response is the firm's response to price, behavioural economics does not deal with the interactions of buyers and sellers in the market place. Nor does it deal with the non-price elements of the marketing mix at all.) If a behaviour analytic interpretation of consumer behaviour is to be successfully undertaken, we must move beyond the confines of a (predominantly experimental) analysis of consumer choice and examine how consumer and marketer behaviour are interrelated. We turn, therefore, to an examination of the underlying philosophy of consumer behaviour analysis and the nature of its interpretation of consumer behaviour and marketing. It describes and evaluates the various themes and styles of experimental and non-experimental research that underpins its research programme, and proposes applications to marketing research and management.

Marketing in behavioural perspective

Generalizations about human behaviour – and perhaps also the more specific observations we base them on – are, inescapably, *interpretations*, accounts of phenomena so complex that we cannot describe them fully, in terms derived from more straightforward observations of simpler phenomena. Calls for interpretive

accounts of consumer behaviour are prominent now, part of a post-positivistic movement that emphasizes that our accounts of consumption must go beyond the quantitative studies that have predominated hitherto and must in the process give rise to a more comprehensive range of theories and explanations or at least descriptive accounts. This is fine as far as it goes but it is not a genuinely comprehensive approach: its delimitation to so-called 'post-positivistic' perspectives rules out a number of approaches that a truly comprehensive consumer research requires in order to achieve the interplay of competing theories which is implicated in the growth of knowledge. To that extent, it is unfair to those who espouse a more traditional approach and it also loses their contribution to the more recent debate. It is also unfair to the advocates of a more interpretive approach in that it confines their purview such that the interpretive nature of the so-called positivistic consumer research is ignored (quite apart from the apparent inability of so many critics of 'positivism' to understand what it is and its current status in consumer research – Hunt, 1999). These considerations will be especially pertinent to the discussion of classical conditioning research as an interpretive device for consumer research. First, however, let us examine the relevant questions of theory and interpretation.

Theory and interpretation

The current approach of behaviour analysis to complex behaviour is marked by a strong reliance on experimentation at one polar extreme and by speculative interpretations at the other. Unfortunately, they rarely impinge on each other; nor is either uniquely able to contribute more than the rudiments of a genuine operant interpretation. The experimental analysis of consumer behaviour is, therefore, like the experimental analysis of behaviour of which it forms part, a pursuit in itself. The objective seems to be to discover what happens under the rather restricted conditions of the closed setting defined by the experimental space. Discussion, evaluation and response to experimental results are activities similarly confined and often they call upon additional *experimental* research. At the other extreme, behaviour analysts often assume a freedom to 'interpret' complex behaviour by casually 'identifying' by observation and judgement the stimuli that are 'plausibly' held to control responses.

There is apparently no means of checking either the relevance of the experimental results to real-world behaviour or the authenticity of these interpretations as accounts of complexity. Experimentation is undeniably useful in suggesting the kinds of stimuli that ought to feature in a behavioural interpretation but its findings must be linked to observation and judgement by systematic and testable procedures if the resulting interpretation is to have any chance of meeting the conventional criteria of validity and reliability, even as these are understood in qualitative social research.

Consumer behaviour analysis has proposed three means of overcoming this impasse. The starting point has to be a philosophical understanding of the kind of explanatory base that behaviour analysis is able to provide, some theoretical



position that emphasizes both the distinctiveness and the limitations of a behaviourist account of consumer choice. The idea of the *contextual stance* (Foxall, 1998b, 1999a) is meant to provide such a basis and to present it in contradistinction to the *intentional stance* used by Dennett (1987) to characterize a particular philosophical foundation of cognitivism. Consumer behaviour analysis, as will be familiar by now, has never sought to pursue a behaviourist approach to the exclusion of other perspectives; indeed the coexistence and interaction of multiple theoretical viewpoints is central to its conception of intellectual development. The intentional stance is assumed not on grounds of the empirical availability of the elements it uses (propositional attitudes such as beliefs and intentions) but because the ascription of such elements to systems supposed to be rational makes the behaviour of those systems more predictable and in part explicable. The contextual stance is similarly instrumental: its goal is the prediction and partial explanation of the behaviour of systems assumed to act in accordance with their learning histories, the outcomes of their previous encounters with the consequences of their actions.

The second theme inherent in consumer behaviour analysts' search for an acceptable interpretation is its examination of how the elements of the three-term contingency ought to be construed in non-laboratory settings. In the course of finding a conceptual and analytical framework for operant interpretation of human consumer behaviour, the units of analysis must change from those current in experimental analyses of animal and human behaviour. The idea of a schedule of reinforcement, for instance, so valuable in the experimental study of animal behaviour and often useful in that of human choice (if only to determine the extent to which language may be responsible for insensitivity to the contingencies), is of little relevance in behavioural *interpretation*. The concepts of discriminative stimulus, establishing operations and so on must give way to that of consumer behaviour setting scope, while the study of schedule effects must give way in the contexts that require an interpretive approach to that of the *pattern of reinforcement* (the relative levels of utilitarian and informational reinforcement signalled by the consumer situation).

In the case of both antecedent (or setting) stimuli and consequent (or reinforcing/aversive) stimuli, the conceptual development has been based firmly on experimental finding by behaviour analysts as they apply to the realities of human economic behaviour identified by other social scientists. The interpretive device that results from the combination of consumer behaviour setting scope, consumer behaviour and its (utilitarian, informational and aversive) consequences as signalled by the stimuli that comprise the setting is the *behavioural perspective model*. Foxall (1998a) treats the derivation of this model in some detail. What is vital to an operant interpretation is the recognition that the potency of the stimuli that comprise the consumer behaviour setting is determined not by the stimuli themselves but by their transformation of the individual consumer's *learning history*, his or her prior behaviour in similar settings and its reinforcing/aversive outcomes. This potency is the scope of the setting, its predisposition to motivate or inhibit specific behaviours; the purpose of the behavioural per-

spective model is to locate consumer behaviour and the location of any specific response or pattern of responses, known as the *consumer situation*, is defined by the intersection of the behaviour setting (representing place) and the consumer's learning history (representing time). The outcomes signalled by setting stimuli as contingent on specific consumer behaviours are utilitarian and informational reinforcement and aversive (or punishing) consequences. The behavioural perspective model is a means of summarizing empirical regularities, the kind of generalization of findings that both Skinner and Ehrenberg have called for as an avenue to theorization. This is neither grand theory nor abstracted empiricism: it is precisely the sort of middle range theory that social scientists have advocated.

The third way in which consumer behaviour analysis has sought to bring experimental and interpretive approaches together has been to propose a means of testing propositions derived from its interpretations through the incorporation of survey research (Foxall, 1998a). Despite the case made by Staats (1996) and others for the use of this source of data, it remains a forbidden approach for the vast majority of behaviour analysts, along with the hypothetico-deductive method and statistical testing that tend to accompany it. It appears, nevertheless, to be an important means of testing and evaluating behavioural interpretations (Foxall, 1997c; Foxall and Greenley, 1998, 1999, 2000).

Berry and Kunkel (1970) drew attention to the need for the development of a general theory of marketing based upon a compatible theory of consumer behaviour. This is a genuine prerequisite of a valid intellectual understanding of marketing, and behaviour analysis offers a conceptual framework which can accomplish the necessary integration. Research into consumer behaviour has often proceeded in apparent isolation from the concerns of marketing management. Each study has its own journals and procedures and it is common to specialize in one or other discipline. Since study of either of these aspects of economic behaviour depends on the other, consumer researchers are forced to make somewhat simplistic assumptions about marketing and marketing scientists do similarly with respect to consumer behaviour. A vital concern of consumer behaviour analysis has been to treat both as parts of a single system. The result has been an account of the 'marketing firm' that proceeds in terms of the model of consumer behaviour and relates consumer and marketer behaviour within a single framework of conceptualization and analysis.

Hence, Foxall (1999c) proposes an interpretation of the nature of the 'marketing firm' derived from the understanding of the factors that influence consumer choice to which the behavioural perspective model draws attention. Marketing is the key to the theory of the firm sketched in this paper, a departure from theories of similar scope developed by economists and sociologists. The activities of marketing management are encapsulated in the attempt to alter the scope of the consumer behaviour setting and to manipulate reinforcers and punishers, a departure from the usual depiction found in the marketing literature of the marketing-orientated firm responding to autonomous consumer wants. Finally, the paper argues that marketing management is to all intents and purposes a behaviouristic enterprise.



Classical conditioning research

Although behaviour analysis tends to de-emphasize classical conditioning in favour of operant, it is essential to consider the former not only in its own right but in order to appreciate (1) its possible interaction with operant conditioning – the procedure in which behaviour is explained and predicted by reference to its consequential rewarding and punishing stimuli – in the production and maintenance of behaviour and (2) to compare classical conditioning with the stimulus equivalence phenomena which have recently assumed explanatory importance in behaviour analysis (Sidman, 1994).

Consideration of attitude within a learning framework is well established. For Doob (1947), attitudes are ‘implicit conditioned responses which can mediate other overt responses with respect to the stimulus object which elicits the attitudinal response’ (see also Staats, 1964: 291). Doob (1947) defines attitude as ‘*an implicit, drive-producing response considered socially significant in the individual’s society*’. In more detail, he considers:

... ‘an attitude (1) an implicit response (2) which is both (a) anticipatory and (b) mediating in reference to patterns of overt responses, (3) which is evoked (a) by a variety of stimulus patterns (b) as a result of previous learning more of gradients of generalisation and discrimination, (4) which is itself cue- and drive-producing, (5) and which is considered socially significant in the individual’s society. (1947: 135–6)

The principle behind the classical conditioning of attitudes is simple enough. In the standard classical conditioning experiment, an *unconditioned stimulus* (US) such as food which naturally elicits an *unconditioned response* (SR), salivation, is paired with an initially neutral stimulus (so called because it does not have this eliciting capacity) such as the sound of a metronome; after a series of such pairings, the metronome beat ceases to be neutral: its acquired capacity to elicit salivation has transformed it into a *conditioned stimulus* (CS) and the salivatory response it elicits is known as the *conditioned response* (SR). Attitudes, conceived, in line with Doob’s definition, as implicit evaluative responses, can be conditioned in a similar procedure. The adjective (US) that elicits a positive emotional response (UR) can be paired, say through advertising, with a brand name (CS) which, in time, comes also to elicit the implicit positive evaluation (CR) (Eagly and Chaiken, 1993).

The opportunities and limitations of classical conditioning research are readily seen from Gorn’s attempt to relate music in advertising to consumer choice (Gorn, 1982). This and other studies which have appeared to show classical conditioning have been criticized on the grounds that a single conditioning trial is rarely sufficient to produce a conditioned response. The rarity of a single trial producing conditioning was first used as a criticism of Gorn’s research by McSweeney and Bierley (1984) and led to more rigorous empirical research by Bierley et al. (1985). Criticism came also from Stuart et al. (1987), and Shimp et al. (1991). It was criticized on the basis of empirical research by Kellaris and Cox (1989) and Allen and Madden (1985). The failure of this work to produce convincing empirical support for classical conditioning might be due to (a) the inability of

classical conditioning experiments to reflect and account for behavioural change in complex situations of purchase and consumption, and/or (b) lack of rigour in the use of research techniques. McSweeney and Bierley (1984) suggest the latter and propose a rigorous framework for classical conditioning research in the consumer field. Bierley et al. (1985) put this framework to the test. Nevertheless, criticism of classical conditioning research proceeds in tandem with its extension as an interpretive device to novel areas of consumer choice (Allen and Madden, 1985; Feinberg, 1986; Stuart et al., 1987; Shimp et al., 1991).

Although the demonstration by Stuart et al. (1987) of the classical conditioning of attitudes in a laboratory setting is not sufficient to show that classical conditioning occurs in 'natural advertising situations', it raises important points for research and explanation. It first, draws attention to the phenomenon of 'latent inhibition' in which prior non-reinforced familiarity with the conditioned stimulus adds to the difficulty of producing conditioning. Second, and more importantly, it generates evidence that while the familiar 'forward' conditioning (in which the presentation of the conditioned stimulus precedes that of the unconditioned stimulus) produces stronger attitudes than does backward conditioning (in which the unconditioned stimulus precedes the conditioned stimulus), significant conditioning occurs nonetheless as a result of backward procedures.

A clearer picture of the capacity of classical conditioning to afford a reliable interpretation of consumer choice emerges from research by Shimp et al. (1991). These authors found that classical conditioning accounted for 4 percent of the variance in consumers' attitudes towards the brands they employed as conditioned stimuli. In an attempt to contextualize these results, they argue that they are not out of line with size effects in social science generally, and note that their stimuli were weak compared with the associative stimuli encountered in the market place: 'enticing fragrances, beautiful people, or the alluring qualities of audiovisualisations prominent in many television commercials' (1991: 9). More central to the question of explaining or plausibly interpreting consumer behaviour by reference to classical conditioning, they found that subjects had to be *aware* of the relationship between conditioned and unconditioned stimuli in order for conditioning to occur.

Operant research and marketing interpretation

Numerous papers portray an array of different styles of operant research on consumer behaviour and marketing management. For instance, Rajala and Hantula (2000) describe laboratory experiments with 'consumers'; three contributions in applied behaviour analysis describe field experiments involving consumer behaviour or evaluations and service providers' responses (Crowell et al., 1988; Greene and Neistat, 1983; Greene et al., 1984); three more describe the application of a theoretical model based on behavioural psychology, via survey research, to retail management (Berry, 1968, 1969; Kunkel and Berry, 1968); and another, the use of a survey to evaluate the behavioural perspective model (Foxall and Greenley, 2000). Interpretive approaches to marketing management in its widest



sense have also been undertaken; Rakos (1993) applies behaviour analytic concepts to propaganda; while Foxall (1994, 2001a, b) integrates behaviour analytic research on environmental conservation and marketing mix management, a blueprint perhaps for a more comprehensive integration of the disciplines at the core of consumer behaviour analysis.

These studies represent a progression from the abstracted world of experimentation to the familiar world of consumer choice and marketing management. This is not to suggest that they 'progress' from those that are the least attractive or useful in consumer behaviour analysis to those that are the most relevant and effective. All of the approaches pursued and exemplified here are essential to consumer behaviour analysis; moreover, they are all highly and equally relevant. They all interact with and strengthen one another and the only sense of progression is one of level of analysis.

The general benefits of experimental analysis are well known and several that are especially pertinent to behavioural economics and consumer behaviour analysis are adumbrated and discussed by Kagel (1987). But there is a downside to experimentation that is potentially a demerit for work in this field. Barker's *ecological psychology* (1968) is an attempt to overcome this by observing behaviour in naturalistic settings. The role of the investigator is that of a 'traducer' or observer rather than that of an 'operator' who intervenes by asking questions or arranging contingencies. The concept of behaviour settings, as developed by Barker, is important in distinguishing this approach to psychology from that of the experimentalists. An experiment creates its own new behaviour setting. How does that new behaviour setting relate to the rest of human behaviour and its environments? The old wisdom is that an experiment examines part of human behaviour and then this can be related to the whole but Barker argues that the new behaviour setting created by the experiment must be related to other behaviour settings. But the danger is that the experiment has created a new setting that has no connection with the rest of life (i.e. with other settings). Human behaviour is not the seamless web that experimentalists assume it to be; once this is accepted, the experimental method encounters extreme difficulty. People might, for instance, never experience the kinds of frustration and regression contrived in an experiment. As Schoggen (1989: 357–8) puts it:

Ecological approaches to scientific problems are not incomplete or defective experimental approaches. On the contrary, they provide knowledge that the best experimentation cannot provide, because experimentation by arranging conditions according to the concerns of the experimenter destroys the very thing an ecological investigation seeks to determine. The importance to science of experimental methods is everywhere recognized, but it is perhaps less widely realized that the ecological side of science is also essential. From a purely scientific viewpoint, it is important to determine how nature is arranged and how it is distributed on every level without alteration of any kind, and this can only be accomplished by ecological methods ... Scientific psychology knows and can know nothing about the real-life settings in which people live in ghettos and suburbs, in large and small schools, in regions of poverty and affluence. One might think that in the course of its necessary concern with stimuli, psychology would have become informed about the human environment. But this is not the case ...



Moreover, it is clear from the way in which the idea of the behaviour setting has been elaborated in the behavioural perspective model that experimental settings are relatively *closed*: this influences the behaviour that takes place in them. Consider for example the difference between the 'economic' behaviour of 'consumers' in experimental settings and that of real-world consumers in a variety of overlapping, relatively open settings and faced with the entire marketing mix and competition among suppliers.

This does not remove the necessity for experimental research any more than it rules out other kinds of qualitative and quantitative investigation. It is only through experiment that previously unknown behavioural phenomena can be definitively identified and systematically monitored.

A specific purpose of experimental research can be to show that a previously uninvestigated behavioural phenomenon is functionally similar to other, better known, consumer activities. Rajala and Hantula (2000) pursue an intriguing line of investigation involving consumer choices within a simulated internet shopping mall. The research is invaluable for its demonstration that the consumer activities entailed in mall shopping may have similar characteristics to consumer behaviour elsewhere. This article also identifies this work as theoretically sophisticated, bringing together as it does a test of the delay–reduction hypothesis and linking the investigation conceptually to behavioural ecology, a blend of operant psychology and foraging theory. The work identifies this facet of consumer behaviour with an evolutionary psychological approach and paves the way for the establishment of experimental consumer research. (See also Hantula et al., 2001.)

Another role of experimentation is to establish the relevance of novel conceptual analyses in behavioural psychology to consumer research. One of the most significant conceptual developments in behaviour analysis in recent years has been the observation within the context of experiment of *stimulus equivalence*. Experimenters discovered that a subject who was trained (i.e. through a process of reinforcement) to respond first 'B' and then 'C' when presented with stimulus A, would respond with 'C' when presented with B, even though this relationship had not been reinforced. This is not the whole basis of the phenomenon of stimulus equivalence, but it is the crucial experimental finding. (For a comprehensive account, see Sidman, 1994.) Barnes-Holmes et al. (in press) employ equivalence phenomena in a study of subjects' ratings of the pleasantness of various colas: those subjects who had previously passed an equivalence test exhibited significant differences in the ratings accorded different colas; the ratings of those who did not pass the test did not show significant differences of this kind. The research is valuable for its suggestion that the processes underlying consumers' brand evaluations can be related to their capacity to learn equivalence relations; despite the inevitable need for further investigation, this is indicative of a fruitful line of marketing research that should be of both theoretical and practical significance. (For further analysis of relational frame theory, see Barnes, 1994; Hayes, 1991; Hayes et al., 2001.)

Behaviour analysts who have worked in the consumer affairs field show how a field experimentation research technique can be employed in consumer



behaviour analysis. An important element in this work is that consumer research and marketing management can be closely related through the use of a common conceptual framework to understand and investigate consumer and marketer behaviours and their interrelationships. Greene et al. (1984) describe research conducted during a period of rapid price inflation for fast-moving consumer goods. Their aim was to assess the impact of publishing food price data for selected grocery outlets on the behaviours of both consumers and retailers. Prices were monitored in the course of a 14-month baseline period, after which price information was published to consumers and subsequent in-store price changes were related to the provision of this information. Greene and his colleagues show not only how consumers respond to marketing information but how behaviour analysis may form the basis of further marketing intervention.

The marketing of professional services is a dominant theme in current marketing research which concentrates especially on 'the service encounter', the process in which the providers and users of the services in question meet and relate to one another. Greene and Neistat (1983) describe a field experiment in which a consumers' group requested dentists, whose use of lead shielding to protect their patients from X-ray emission had been shown to be deficient, to undertake shielding. The provision of feedback to these professionals resulted in a 'dramatic' increase in shielding which was maintained over a 9-month follow-up period.

Another aspect of the 'service encounter' is described by Crowell et al. (1988): the effects on bank tellers' performance of additional task clarification, performance feedback and praise. Task clarification, which might be thought of as change in the behaviour setting through the specification of verbal discriminative stimuli or rules, had a notable and immediate effect on performance; the independent effects of feedback (informational reinforcement) and praise (which has elements of both utilitarian and informational reinforcement) took longer.

Berry and Kunkel (1970) turn even more closely to marketing concerns, developing and applying the theoretical framework to specific issues arising out of retail images. Although these articles contain some common elements, they develop and apply the model in ways that are distinct and interesting. The emphasis is in accord with the behavioural science stricture that 'concepts should have empirical referents' and, since the notion of 'image' in marketing is notoriously difficult to define – with the outcome that it is frequently left unspecified – Kunkel and Berry's attempt (1968) to capture it in terms of discriminative stimuli is instructive as well as useful, the beginning perhaps of a thoroughgoing reconceptualization of marketing in behavioural terminology. The theoretical framework that Kunkel and Berry advance nicely includes the concept of social norms which would incorporate inter alia what behaviour analysts refer to as rules. The framework suggests a means of interpreting complex behaviour by allowing the elements of the three-term contingency to be identified: 'by reinforcing particular behavior patterns when they appear in a specific context, the norms of a society and various subcultures determine which aspects of an individual's context will, over time, take on controlling properties'. The authors suggest how their framework can be applied empirically, not only to understand consumer behaviour but

also to relate it to marketing management; Berry (1969) does just this in relation to departmental store images and Berry (1968) to banks.

The study by Foxall and Greenley (2000) represents a further move away from experimental procedures to the use of survey research to test and evaluate a behavioural interpretation of consumer choice. This approach incorporates hypothetico-deductive research techniques to examine empirically propositions and hypotheses derived from the theoretical framework. Still on the theoretical level, the paper extends the behavioural perspective model in a way that was first alluded to by Foxall (1999a): the need to provide a subsumptive level of analysis. The research described here is highly integrative of the various themes pursued in consumer behaviour analysis. It explicates the theme of attitude-behaviour relationships (see, especially, Foxall, 1986, 1997a, 1997b; Dall'Olmo Riley et al., 1997), and the need to incorporate situational influences on choice into attitude models; in addition, it brings together the classical and operant conditioning procedures (cf. Foxall and Soriano, 2001), ties the general approach to that of environmental psychology, and provides the basis for a prescriptive approach to aspects of retail marketing and design.

Classical and operant conditioning are frequently implicated in the formation of attitudes (Eagly and Chaiken, 1993), though there is no generally accepted theoretical portrayal of the processes involved and how the two conditioning processes might interact. Foxall and Greenley (2000) propose and test a model of attitude formation that incorporates Staats's psychological behaviourism (Staats, 1996) (which unifies the classical and operant paradigms and is proposed as a subsumptive level of behavioural analysis), the behavioural perspective model (which suggests how situational influences on consumer choice may be delineated), and Mehrabian and Russell's (1974) approach to environmental psychology which permits predictions of attitudinal responses to consumer situations to be formulated and tested (cf. Foxall, 1997a). Consumers rated descriptions of consumer situations based on the contingency categories identified by the behavioural perspective model in terms of *pleasure*, *arousal* and *dominance*. The results indicate that attitudinal responses to consumer environments vary as predicted by the model. This investigation has now been replicated in Venezuela with similar results (Foxall and Soriano, 2001). Work is under way to develop the findings into practical recommendations for marketing managers: in the past, such recommendations have taken the form of exhortations to manipulate the pleasure-, arousal- and dominance-eliciting nature of retail environments, but it is hoped that it will now be possible to delineate the components of the environment that elicit these emotional reactions in terms of the utilitarian and informational reinforcement those environments generate and the scope of the settings they represent. This consideration brings us nicely to the question of how far this work applies to marketing management, which is taken up in the last two selections.



Marketing decision making

A different approach is shown by Rakos (1993) who undertakes an *interpretation* of the role of propaganda – specifically *New York Times* reports – during the period between the Iraqi invasion of Kuwait and the onset of the Gulf War. His interpretation does not directly involve experimental work but draws upon recent developments in empirical research and conceptualization that rely in turn on laboratory investigations. The simple notion of behaviour being signalled by a discriminative stimulus, modified in behaviour analysis as the motivational significance of *establishing operations* or function-altering stimuli, has become widely appreciated and formally incorporated into the explanatory and experimental systems of behaviour analysis. The formal definition of establishing operations (or EOs) is that they are stimuli in the presence of which the status of a stimulus as a reinforcer or punisher is altered (Catania, 1998: 388–9). They include state variables such as deprivation and satiation, and procedures in which a neutral stimulus is established as a reinforcer or punisher. The components of the consumer behaviour setting are, therefore, on the basis of largely experimental research and conceptual refinement, fourfold: the familiar *discriminative stimuli, rules* (which are verbal stimuli that specify or describe a behavioural contingency), *establishing operations* and *symbols* (Rakos, 1993 defines a symbol as ‘a stimulus formed through stimulus equivalence operations; the key notion here is that learned responses come under the control of stimuli that have not been directly associated with reinforcement’). The importance of his interpretation is that these constructs can be readily applied to mass persuasive communications in ways that open up vast areas of marketing managerial action such as advertising and sales promotions to a functional analysis.

In another application of consumer behaviour analysis to marketing management, Foxall (1994, 2001a, b) brings together several features of behaviour analysis and marketing management in a prescriptive account of the required managerial response to environmentally-damaging consumption (cf. Geller, 1989). Using the behavioural perspective model as an organizing framework, Foxall argues that each of the major areas of behaviour analytic research on environmental concerns can be predominantly related to one or other element of the marketing mix. Remedial action, while not ignoring the other three main elements, must therefore emphasize the major mix element: *product* in the case of transportation, *promotion* in the case of domestic fuel consumption, *place* where waste disposal is involved and *price* in the instance of water conservation. Tentative social marketing policies are then outlined. Most conventional attempts at changing consumers’ behaviour in this area rely on exhortations to reduce global effects of consumption. They have not on the whole been conspicuously successful; the managerial approach proposed here appears to have a large volume of research findings to support it, and the theoretical framework of ‘the marketing firm’ (Foxall, 1999c) to undergird it intellectually. It may also pave the way for further research that extends the range of applications of consumer behaviour analysis in marketing management and provides empirical tests of that framework.



Conclusion

Marketing is as old as exchange but we have barely begun to understand and address the intellectual problems it poses. The overwhelmingly pragmatic programme of academic marketing has generally precluded – even discouraged – deep excursions into the knowledge base employed by marketing researchers. The result has been a somewhat uncritical, eclectic perspective on knowledge generation and application. Unless marketing researchers appreciate the theoretical and methodological bases of the frameworks of conceptualization and analysis they adopt, however, how can they evaluate the findings their work produces? The scope of marketing theory is at least as wide as that of the social sciences on which we draw (whether or not we are aware of it) when we decide on research issues, plan our investigations, and interpret our results. There will never be a single, consensually-agreed approach to marketing theory, any more than there will ever be a unified social science. But extended thought in any particular manifestation of marketing theory should encourage critical evaluation not only of the results produced within that theoretical framework but of those produced within competing paradigms. The first step is to understand what other approaches are saying, not what we have assumed or been taught they are saying. The aim is not discipleship but debate.

By laying out its theoretical orientation and demonstrating how this is subject to critique and amendment, by presenting an array of techniques and relating them to the theoretical and empirical issues it raises, and by seeking to engage in a critical dialogue with alternative sources of explanation, consumer behaviour analysis has endeavoured to increase the diversity of theoretical positions, methodological perspectives and empirical approaches available to marketing research.

Notes

- 1 For more detailed accounts of the development of consumer behaviour analysis in its theoretical, applied and philosophical aspects, see Foxall (1990, 1996, 2001a).
- 2 The fundamentals of behaviour analysis as applied to marketing can be found in Nord and Peter (1980), Rothschild and Gaidis (1981) and Foxall (1988). They should not be unfamiliar to marketing researchers since they have often been applied in the basic literatures of marketing and consumer behaviour (e.g. Howard, 1963; Peter and Olson, 1996). The essential method is to analyse behaviour in terms of its contingent relationships with the consequences it produces; thus, 'A behavioural contingency consists of a stimulus, a response, and the outcome the response produces in the presence of that stimulus' (Malott, 1986: 208). We can summarize the basic paradigm, the 'three-term contingency', as $S^D \rightarrow R \rightarrow S^R$ where S^D is a cue or 'discriminative stimulus', R is a response, and S^R is a reward or 'reinforcing stimulus'. But any such formula does scant justice to behaviour analysis, which deals nowadays with the subjects that lie at the very heart of the cognitive psychology on which consumer and marketing research rely so heavily, among them, thinking, decision making and language. Foxall (1990) provides a thorough introduction to contemporary



- behaviour analysis as well as a basic commentary on the subjects covered in this essay.
- 3 Note that in the context of this essay, 'behavioural economics' refers to the experimental analysis of economic behaviour as surveyed by Kagel et al. (1995), rather than the broader range of interactions of economics and psychology surveyed by Earl (1988).
 - 4 Compare Kuhn's original thesis (Kuhn, 1970a) with some of his later reflections (Kuhn, 1970b, 1977).
 - 5 A collection of Herrnstein's work has recently been published: see Herrnstein (1997).

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