An Evolutionary Based Theory of Attitudes: New Insights Into Marketplace Behavior

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Abstract

Theories of evolution appear to contribute to an understanding of marketing phenomena, particularly consumer attitude formation. An assumption which underlies evolutionary theories, and is not predicted by other mainstream attitude theories, is examined, tested and found to be supported. The implications of evolutionary theories on attitude theory, behavioral models used in marketing, and the management of the firm, are discussed.

Introduction

According to theories of evolution, elementary particles assembled and formed new objects or matter (i.e., molecules, amino acids, organs) through a layering process, where more complex assemblages were formed, layer upon layer (Weinberg 1977). Similar evolution theories have also been applied to the behavioral sciences. Roger Sperry, for example, linked the implications of the evolution of layers of assemblages to the behavioral sciences (1981, pp. 11-12):

A degree of self-determinacy is lost to the parts as soon as the higher powers of the new whole become superimposed. ...the higher levels involve much more than mass probabilities. The creative, interlocking web of evolving nature is not blind or chance-like but becomes, as it progresses, rich in irreversible, directional, ever more complex constraints that tend to keep things moving in a trend toward higher and more competent forms.

The purpose of this paper is to demonstrate the applicability of theories of evolution to consumer behavior and marketing phenomenon. In particular, the processes involved in consumer attitude formation will be characterized, from an evolution theory perspective. A partial test of implications of the theory will be presented, and the findings will be shown to have integrative implications for consumer theory.

Evolution Theory and Attitude Formation

Attitudes are among the most central social psychological and consumer theory concepts. This paper will attempt to demonstrate that theories of evolution add conceptual depth to mainstream social psychological and consumer theories of attitudes.

Contemporary theories of evolution are based on a variety of behavioral perspectives. However, the widely varying theories appear to have common basic foundations on which to develop a conception of behavior which is global, abstract, and offers theoretical diversity (e.g., Thomson 1982, Stebbins and Ayala 1985). Amdt (1985) argued that the discipline of marketing has been dominated by an empiricist paradigm, stressing objectivity and measurement, which has tended to contribute to relatively narrow and isolated research streams. This paper will attempt to demonstrate that theories of evolution would be a fruitful avenue for integrating and broadening different areas of marketing research. In particular, the area of consumer attitude research is believed to have been especially narrowly focused, with much attention given to highly measurable attitude-attribute models. As
Arndt suggests, the introduction of alternative paradigms, such as theories of evolution, would broaden the conceptual depth of marketing, and in this instance, our understanding of consumer attitude processes. Tellis and Crawford (1981) demonstrated that theories of evolution added a useful alternative perspective of the product life cycle, and broadened the theoretical value of the concept in marketing.

In order to link theories of evolution to attitudinal processes, assume that attitude formation is associated with the conditioning of beliefs..."whenever a belief is formed some of the implicit evaluation associated with the response becomes conditioned to the stimulus object" (Fishbein and Ajzen 1975, p. 29). Different types of stimulus objects and general properties of stimulus objects will briefly be outlined below. In later sections of the paper, these background classifications will be used as a basis for conceptually elaborating about consumer attitude processes, from an evolution theory perspective.

**Types of Stimulus Objects**

Objects can be classified as artifacts, mentifacts and orgifacts. **Artifacts** are man-made reconfigurations of organic or inorganic matter which create a structure of higher form utility. Examples are arrowheads, bullets, bicycles, horse harnesses, autos, cameras, pencils and computers.

**Mentifacts** are abstract symbols which represent meaning or consciousness in the mind (Lumsden and Wilson 1981). For example, all human languages are comprised of mentifacts.

Finally, an **orgifact**, is a social institution (organization) used to perform human functions. Examples are the Catholic Church, General Motors, Harvard University and the Central Intelligence Agency.

Artifacts (man made "tools"), mentifacts (abstract symbols), and orgifacts (social institutions) involve evolutionary processes. Tools evolve, language evolves, and, as history suggests, social institutions evolve.

Each of these stimulus objects are subject to evolutionary processes which facilitate the conditioning of an implicit evaluation of an object. Six evolutionary properties which affect the developmental processes of attitude formation are summarized below.

**Evolutionary Properties of Stimulus Objects**

Six evolutionary properties of objects are: (l) variability, (2) environment, (3) environmental niche, (4) selection, (5) replication, (6) adaptation.

A prerequisite for an object to have potential to evolve is the capacity to exhibit variability. Consider the artifact, an automobile. If all automobiles since the emergent form (l) remained identical in all respects then the automobile would not have evolved during the previous 100 years. Variability among objects is pervasive:

1. **Artifacts** exhibit variability. Consider the different brands of beer, soap and motorcycles.

2. **Orgifacts** which perform a particular function such as religious institutions exhibit variability. The Catholic, Lutheran, Mormon, Baptist churches are not identical.

3. **Mentifacts** exhibit variability. For example, the mentifact "love" means something different to each of us. Nonetheless there is a core of common meaning in the mentifact "love" just as there is a core of common features in a particular type of artifact such as an automobile or in an orgifact such as a government.

**Environment** is also central to evolutionary theory. Objects reside in an external community (i.e., environment) of conditions that affect and influence their growth and development. The external community may harm or protect and nurture the object. An environmental niche occurs when similar forms of objects obtain protection and sustenance in the environment and thus are able to grow and develop. Not all objects will find a niche since their community can become overpopulated. An environmental niche is often necessary for evolutionary potential in an overpopulated community.

A third central concept is **selection**. Because objects exhibit variability and environments become overpopulated, a selection process generally occurs. The external community (i.e., the environment) selects the best performing objects and allows them to survive. This process is
often referred to as "natural selection." Evolutionists argue that these surviving objects are the "fittest - survival of the fittest." The notion, however, can be argued to be a tautology. If an object survives it is fit and evidence of being fit is survival. Despite this tautology the concept of selection is important. For whatever reason (selection or otherwise) some objects survive and others become extinct.

Replication facilitates evolutionary processes. Replication allows the "winners" in the race for survival to carry instructions for survival forward. These instructions can be replicated and transmitted genetically or culturally. The genetic and cultural transmission processes will briefly be distinguished, in order to provide background for later sections of the paper.

Genetic transmission of information is a form of interpersonal communication, as is cultural transmission. However, genetic processes are a slower and less efficient means of information transmission than are cultural processes. Genetic processes (which occur through DNA/RNA transcription) are slower because they are constrained by the rate of species reproductive growth. Furthermore, genetic reproduction requires a "one-on-one" contact of genes, and this individualized contact impedes dissemination of information.

In contrast, cultural transmission of information is facilitated by such societal mediators as norms and beliefs - which enable information to reach a variety of individuals during relatively short time periods. Therefore, when information transmission involves cultural, as opposed to genetic, processes, the rate of evolutionary development of species should be much more quickly facilitated.

The final property to be described is adaptation to the environment. An object adapts to the environment when some variation that it manifests provides it with a higher survival potential (i.e., selection potential) and thus a higher ability to replicate and transmit "winning" instructions. Objects may not necessarily consciously adapt to the environment, rather the environment may adopt those objects which manifest the necessary properties.

In summary, consider the following evolution theory-based perspective about how the component of an attitude, a belief, can be developed from a stimulus object. Humans are able to attach to artifact, orgifact, and mentifact objects a variety of implicit evaluations (i.e., objects have variability of evaluations). Individuals are allowed to select one which facilitates utility to their environment of need-fulfilling values. The implicit evaluation becomes conditioned, because it provides utility to need-fulfilling values. This description is analogous to more conventional views of reinforcement of beliefs (e.g., Feather 1962; Fishbein and Ajzen 1975), and a similar evolution theory-based interpretation of belief formation has been used by sociobiologists (e.g., Buck 1984).

Only one component of an attitude was considered, a belief. At this point, a more expanded discussion of attitudes will be offered, in order to provide more comprehensive and dynamic explanations of attitude formation.

Attitudes About Objects

In order to broaden the discussion of the concept of an attitude, a multiattribute attitude perspective will be used to identify central attitudinal components. Theories of evolution will be applied to the components, and attitude formation will be described from an evolution theory context.

A variety of multiattribute attitude models (such as the Fishbein model) exist in the literature. The Fishbein model and other variants essentially use an expected value formulation of attitude formation; expectancies (beliefs) and values (evaluations) multiply and sum together. Expectancy-value theories of motivation (e.g., Atkinson 1964, Lewin 1938, Tolman 1932, Vroom 1964) have widely "postulated that one's motivation to behave is some function of the psychological value of the outcomes to which the behavior might lead multiplied by the subjective probability that the behavior will actually lead to those outcomes" (Deci and Porac 1978, p. 168).

In social psychology, somewhat altered forms have been suggested (e.g., Anderson 1970), as well as in marketing (Ahtola 1975; Burnkrant 1976). Furthermore, the validity of the cognitive algebra of the general form has been questioned
(Bettman et al. 1975; Meyer 1981; Lynch 1979, 1985). Nonetheless, the multiplicative nature of the model and its underlying rationale has remained essentially similar. "Overall affect is posited to reflect the net resolution of an individual's cognitions (beliefs) as to the degree to which given objects possess certain attributes weighted by the salience (importance) of each attribute to the individual" (Wilkie and Pessemier 1973, p. 428). In marketing, a related model (e.g., Wilkie and Pessemier 1973), has been popular. In this formulation the importance weights are similar to "incentive values" in expectancy x value theory. Importance weights (or values) are also sometimes referred to as desires and demands (Atkinson 1964; Bolles 1974; Zeleny 1982).

The independence of the expectancy (belief) and value (importance) components is widely assumed (see, for example, Atkinson 1958, 19-64; Feather 1962; and Atkinson and Feather 1966, for a discussion of independence). Consequently, the central dogma of multiatribute theory would imply that beliefs and desires are as shown in Figure 1A.

Beliefs and Desires: Two Evolutionary Explanations

Two general explanations of consumer attitude formation will be offered, based on the properties of evolution theories considered earlier. The explanations will involve two of the components of expectancy x value theories, expectancies (beliefs) and values (desires). From an evolution theory perspective, the two components will be shown to be positively correlated, not independent. Although social psychological attitude models generally focus on individual behavior, the explanations considered below will demonstrate that beliefs and desires are correlated on a macro or societal level and also on a micro or individual level. The macro discussion will be limited to beliefs and desires about artifact and orgifact consumer objects. The micro explanation will deal with objects generally but use orgifact and artifact examples.

Beliefs and Desires: A Macro Evolutionary Explanation

Assume that the stimulus object, or consumer product, consists of attributes. For each of these attributes there can exist a belief that the object (consumer product) is connected with the attribute and a desire level for the attribute. These assumptions are made in multiatribute attitude theory.

Consider the environment of the product: the marketplace, composed of buyers and sellers of the product. In this environment buyers purchase bundles of desires and sellers offer bundles of benefits (and, of course, some consumers are assumed to have beliefs about these benefits).

Figure 2A introduces the concept of variation from evolutionary theory into the discussion. Figure 2A is concerned with a single attribute for a hypothetical product class such as automobiles. Assume that the attribute is "durability" of the automobile. There are six possible desire levels - perhaps represented by a 6 point scale ranging from low importance to high importance. Consumers vary along this six point scale. On the vertical axis in Figure 2A assume the existence of six possible brands that range in degree of connectedness with, or probability of having, the durability attribute. This axis is labeled "benefits," because each of the six brands have varying levels of connectedness to the durability benefit attribute. In summary, Figure 2 represents benefits provided by sellers versus desires of buyers.

The concept of selection is introduced in Figure 2B. The process of selection in the environment (marketplace) will allow survival and extinction of certain benefit and desire combinations. In Figure 2B the diagonal will be selected for survival. The upper triangle would not likely be selected by sellers because of the unprofitableness of these combinations. Consider point A as an example. This point represents a low level of desire for durability but a high benefit or connectedness to durability for a particular automobile. Since the desire is low for durability the consumer would not have much marginal utility for this high benefit level and thus not pay much for it. The seller would derive greater utility if his resources are placed on more desirable attributes. Therefore, all of the points in the upper triangle should become extinct.

Consider next the lower triangle in Figure 2B. Benefit-desire combinations in this lower triangle
are also unlikely to be selected, but from the perspective of the buyer, not the seller. For example, point B represents a high level of desire for durability but a "low benefit" on this attribute. The buyers would not select this product if they had "better performance" available from which to select - the case in Figure 2B. In a similar fashion all points in this lower triangle would be selected out for extinction.

Referring back to Figure 2B and assuming that sellers extinguished the upper triangle and that buyers extinguished the lower triangle: only the diagonal remains. Importantly, the diagonal (the portion which has "survived") represents the "fittest combination" of desires and benefits. The survival or selection of the diagonal also suggests that desires and benefits are correlated and that this correlation evolves from a naturally occurring process in a freely competitive environment. In a Journal of Marketing article entitled "Importance - Performance Analysis" Martilla and James (1977) essentially suggest that firms focus on this diagonal.

The correlation between benefits and desires can only occur if replication (information transmission) exists. If the structure of the marketplace is as described in Figure 2A but becomes the structure in Figure 2B it could revert back to 2A unless replication occurs. However replication does occur in the market place, both on the supply or seller side and on the demand or buyer side. Firms which offer profitable attribute combinations are copied - plagiarism in the marketplace is extensive. Note, for example, style and engine replication in the auto industry. Similarly, buyers replicate or copy via processes such as consumer socialization, diffusion of innovations and fashion diffusion. Therefore, as sellers learn "what is profitable" and buyers learn "what satisfies their desires," the information becomes transmitted across firms and individuals, and the structure of the marketplace becomes more stable. Alchian (1950), Becker (1976), Hirshleifer (1977), and Winter (1964) are among those who have offered alternative but complimentary explanations to the one considered above, about how evolutionary theories apply to macro processes of demand and supply.

The diagonal in Figure 2B was described in a very general context: at any moment it would be ragged at the edges and over time it would have a dynamic structure. Buyers and sellers should be expected to experiment with different combinations of benefits and desires, in order to "learn" which combinations provide survival potential. This initial exploratory behavior is necessary for buyers and sellers to develop a sufficient repertoire of information to use in future decisions. Exploratory behavior is central for evolutionary survival (e.g., Berlyne 1960, 1965), even though the alternatives selected may be far from optimal.

In addition, buyers and sellers are faced with changing external market conditions. Adjustments in the legal/political environment and changes in technology would influence the benefits and desires of buyers and sellers.

The fluctuations which cause the diagonal to be ragged and dynamic are necessary for buyers and sellers to evolve. The fluctuations may be viewed as intermediate evolutionary stages involved in an eventual correlation between benefits and desires.

This above macro explanation is similar to Adam Smith's "invisible hand" theory. It is interesting to note that Charles Darwin may have been influenced by the writings of Adam Smith (Schweber 1977).

A Digression on the Marketing Concept

The conclusion that the marketing concept naturally occurs in a free and competitive marketplace would follow from the previous explanation, if viewed at a high level of abstraction. For example, consider the paradigm which is generally taught in an introductory marketing course: (a) a firm should study consumers to determine their desires; (b) the firm's resources should then be used to develop bundles of benefits which have the potential to satisfy the consumer's desires, in response to the performance (usually profit) desires of the firm (note only the diagonal in Figure 2B accomplishes this), and (c) as a consequence, both the consumer and the firm will be more satisfied.

The macro evolutionary theory of benefits and desires emphasizes that buyers and sellers are mutually satisfied. Discussions of the marketing concept have often focussed so heavily on the consumer that sellers have been inadequately
considered (Houston 1986). In order for a marketing system to have evolutionary potential, both buyer and suppliers should achieve satisfaction. In addition, the marketing concept has been referred to as normative but perhaps it is positive. If a firm does not follow the marketing concept then evolution theory suggests that it will become extinct. The environment would appear to select only practitioners of the marketing concept. However, in contrast to Houston (1986), in the short run sellers may practice the production or sales concept.

Beliefs and Desires: A Micro Evolutionary Explanation

Evolution can also be used to explain why beliefs and desires may be correlated at the micro or individual level. This explanation will be at a highly abstract level. For desires assume the more abstract concept of needs, for beliefs assume the more abstract concept of cognitions, and for attitudes assume the more abstract concept of emotion. The explanation is based on theories of the phylogeny of the brain, by applying, primarily, MacLean’s trine concept of brain development (e.g., 1964, 1968, 1969, 1973). MacLean’s theories have been widely established and have been often used as a basis of numerous other contemporary brain functioning theories (e.g., Nebylitsyn 1972, Boag and Campbell 1973; Pribram 1976; and Buck 1984).

The most primitive part of the brain is the brain stem or the medulla and it controls instinctive activity. Instincts evolved early and they were primarily concerned with protection/survival. This "instinctive", part of the brain has been termed the "reptilian brain", as illustrated by the reptile's tendency to follow instinctive pathways as a means of maintaining survival (MacLean 1973, p. 10). An action (instinctive behavior) which met a need was selected out for survival; other reflexive behaviors were extinguished. "Reptilian" survival needs catalyzed actions and actions catalyzed instinctive survival needs (as shown in the first portion of Figure 3). Survival needs and instinctive actions are cocatalytic through a spiral of time, across species, as mediated by the medulla (e.g., MacLean 1968, 1969, 1973). In other words, the medulla "correlated" needs and actions, and the dependence relationship was necessary for survival. Independence of actions and needs would be argued to result in extinction of the organism and eventually in extinction of the species.

Later, the limbic system of the brain evolved which regulated behavior through hedonistic/emotional response. Clinical and experimental findings indicate that the limbic system, stimulated by the more primitive components of the brain stem, is primarily concerned with the regulation of emotional feelings and behavior to insure self-preservation (MacLean 1958, 1959, 1973). The "emotional stimulation" from the limbic component of the brain determines the "leaning toward" and "leaning away" actions individuals have for objects. As shown in Figure 3 the relation between needs, emotions, and actions is also catalytic. Needs catalyze emotions toward objects, emotions catalyze actions, and actions catalyze needs. Once again this catalysis occurs through a time spiral and for the survivors a correlation between needs, emotions and actions develops.

The third component of the brain to evolve was the neocortex, which involves cognitive or analytical functions. The neocortex evolved to allow mammals more flexible voluntary motor systems, featuring more sophisticated auditory, visual, and tactile sensory utilization. Cognitions (beliefs) about objects are developed (see Figure 3). However, generally an emotion already exists, because of the interaction of the previously developed limbic system and the neocortex.

A "reinforcement network" is formed, from the cognitions produced by the neocortex, which readjusts emotions of the limbic system, and a "drive network" emerges from the limbic system which eventually leads to changed "reptilian needs" of the brain stem (Klopf 1982). Thus the catalysis is eventual and not mutual but this catalysis as it evolves through a time spiral results in needs, emotions, cognitions and actions all being correlated. An evolutionary perspective suggests that alternative relationships would result in eventual extinction. An organism would lean toward objects that fulfill needs, approach these objects, and form cognitions which support the continued behavior (and vice versa for objects that are harmful).

The brain evolved layer upon layer into the assemblage it is today: "Perhaps the most revealing thing about the study of man's brain is that
he has inherited the structure and organization of three basic types which, for simplification, I refer to as reptilian, old mammalian, and new mammalian. It cannot be overemphasized that these three basic brains show great differences in structure and chemistry. Yet all three must intermesh and function together as a "triune" brain. The wonder is that nature was able to hook them up and establish any kind of communication among them" (MacLean 1973, p. 7). Throughout our phylogeny humans have been exposed to an enormous number and variety of objects and have inherited emotions toward the objects. But what about twentieth century recently created man-made objects - artifacts, orififacts, and mentifacts? The "liking" of The Limited (a fashion oriented women's apparel store) could not have been genetically transmitted. How could have cognitive activity been developed for any Limited? A classical evolutionary principle (James 1884, p. 195) is that "when a certain power has once been fixed in an animal by virtue of its utility in presence of certain features of the environment, it may turn out to be useful in presence of other features of the environment that had originally nothing to do with either producing or preserving it. A nervous tendency to discharge being once there, all sorts of unforeseen things may pull the trigger and let loose the effects" (James 1884, p. 195). Thus without initial cognition an individual might "like" the following types of stores:

1. uncongested stores because congested stores trigger a fear of danger due to perceived scarcity of resources (which could have its roots in hunter/gather societies)

2. well lighted stores because of an avoidance of a fear of the dark where dangers could be hidden

3. stores with familiar merchandise because of a fear of unknown objects which could possibly harm

4. stores with employees that are of the same race and social background because they are less likely to trigger a fear of competing tribes

An individual may attribute a variety of causes to his emotions, once the emotion has been formed. This is, of course, especially the case when a paper and pencil test is given for beliefs and desires of attributes of objects. The individual creates a mental state (a cognition) that is consistent with his feeling. In short, the "liking" of an object suggests that it offers the benefits desired, and thus beliefs about benefits and desires would be correlated.

Importantly, the initial trigger of emotion may be overruled at later points in time as more experience with the object is obtained. Regardless, the change in desires would be consistent with benefits perceived to be offered, and the evolutionary spiral of time would result in needs (desires) and cognitions (beliefs) about objects being correlated.

Preliminary Examination of the Relationship Between Desires and Beliefs About Benefits

Multiattribute models assume that desires and beliefs about benefits are independent, while theories of evolution appear to suggest that the two concepts are correlated. The issue of independence is far more profound than what such an assumption may or may not suggest about the theoretical appropriateness of attitude-attribute models. Two evolution-based explanations were offered which attempted to demonstrate that the relationship between desires and beliefs about benefits was a fundamental aspect of survival and development of species. As indicated in the previous sections, the perspectives have received extensive theorization in other disciplines. However, similar perspectives also appear to deserve attention in marketing: they may link the marketing concept to survival-related functions of the consumer and the firm. They appear to justify the practice and study of marketing because they suggest that marketing provides evolution-based utility to the functioning of consumers and firms. In addition, some implications of the relationship in the following areas are considered: (a) attitude theory, (b) the types of behavioral models used in marketing, and (c) the management of the firm.

Attitude Theory

Redundancy of Beliefs and Desires

A sufficiently strong correlation between desires and beliefs about benefits suggests a redundancy in multiattribute models which multiply beliefs times desires. Consider the hypothetical
case where beliefs and desires are perfectly correlated. Under this condition a beliefs only model would contain the same information as the more redundant beliefs and desires model. Obviously beliefs and desires are not perfectly correlated but nonetheless the positive relation between beliefs and desires (which is independent of halo effects) may help explain the typical lack of an increase in explained variation in multiattribute attitude models when desires are added to the model (see, for example, Sheth 1973).

Affect and Cognitions

Because the hypothesis that beliefs and desires are correlated was based on theories of evolution, additional theoretical elaboration about the evolution-based role of attitude formation may be useful. Zajonc (1980) used evolutionary perspectives to develop arguments about why affect precedes cognitions and his arguments have been hotly debated (Lazarus 1982, 1984, Zajonc 1984, Zajonc and Markus 1982, 1985, Tsai 1985). This paper’s tentative findings suggest that affect may often be a good substitute for cognition. If over the evolutionary spiral of time the objects "I like" offer desirable benefits then one may "lean toward" objects by using purely non-cognitive processes. The "cognitive" benefits sought from an object will likely be present in the object affectively desired. On the other hand objects may exist which are disliked, without the necessary condition of cognitive processing. The objects may be disliked because they offer harm or block goal attainment; and the cognitive processing of the dislike may be unnecessary. The dislike may suggest their potential to offer harm and thus individuals "lean away from" the object without necessary cognitive processing. In short, liking and disliking objects without necessary cognitive processing may be a very efficient means of surviving and thus increasing the evolutionary potential of the species. In this regard an example from Zajonc (1980, p.156) is very revealing:

A rabbit confronted by a snake has no time to consider all the perceivable attributes of the snake in the hope that he might be able to infer from them the likelihood of the snake’s attack, the timing of the attack, or its direction. The rabbit cannot stop to contemplate the length of the snake’s fangs or the geometry of its mark- ings. If the rabbit is to escape, the action must be undertaken long before the completion of even a simple cognitive process - before, in fact, the rabbit has fully established and verified that a nearby movement might reveal a snake in all its coiled glory. The decision to run must be made on the basis of minimal cognitive engagement.

Cognitions and Evolution

A more comprehensive macro explanation of the role of cognitions in the evolution of human species appears to be an important direction for further inquiry. For example, the interrelationships between cognitive processes, symbol formation, and culture, should be given expanded consideration. Cognitions create symbols which facilitate the construction and development of a culture. When culture emerges, needs become determined not only by genes but also by culture (Parsons 1982, p. 300). As discussed earlier, cultural transmission of information is much more rapid and broadly based than is genetic transmission. Therefore, cultural transmission accelerates the process of evolution.

The accelerated cultural evolution of cognitive development facilitates the emergence of abstract objects (i.e., mentifacts). Consider the abstraction which has developed and evolved - money. As money evolved, it has become increasingly more abstract. Initially money was a metallic object used as a common unit of exchange; later, paper money emerged which was tangible only in substance. (The same piece of paper might represent $1, $100, or $10,000, etc.) Today money is even more abstract, and is transmitted through credit cards and electronic impulses.

Regardless of the level of abstraction, money has allowed humans to attach a shared meanings of value to a resource (object). Consequently, in a free enterprise economy, monetary profit may potentially be viewed as a macro-indication of attitudes toward economic objects. Profits may signal that output should be increased to more satisfactorily meet the demands for favorable objects. Money and profit may catalyze the rapid growth of objects and reduce the survival potential of disliked objects. Perhaps this is why the Durants (Durant and Durant 1968) concluded that "the experience of the past leaves little doubt that every economic system must sooner or
later rely upon some form of the profit motive" (p. 54).

Relatedly, accounting has not always been viewed as a science. Perhaps the field can achieve scientific status if it redefines its function with respect to the measurement, in monetary terms, of the attitudes of society toward objects and the transmission of signals about the desirability of these objects. When revenues exceed expenses a residual results that signals a liking for an object and a continuation of production. Expenses in excess or equal to revenues signal an overall dislike for the object in its present form or configuration. Evolutionary theory would predict that the object would be modified or annihilated and thus managers should act accordingly to such signals.

**An Attitude Driven World**

Perhaps a more interesting question in attitude theory is not what determines attitudes, but how attitudes determine or shape other objects. Liking or disliking objects (leaning toward or away from objects) influences if not the total fabric of the organic and inorganic "world." Liking and disliking objects appears to "cause them" to change, in a world with or without a market mechanism. If, in a primitive world, all individuals like berries of a particular sweetness, then the resource is likely to be destroyed. The only berries that will survive are those that are sweeter or more bitter than society prefers. If the members of society begin to recognize that they will destroy a limited resource then rules or norms for sharing and protecting the resource will emerge. This example illustrates how liking an object can begin to shape the entire network of objects in the world. Consider a more "contemporary world" with a market and monetary system. Numerous individuals like Japanese automobiles. Sales and profits of Japanese auto manufacturers rise, which incidentally reflect favorable attitudes in society toward these objects. What happens? Other producers of autos respond and try to replicate similar automobiles. "Our world" has changed as a result.

Earlier in the paper three types of objects were described: artifacts, mentifacts, and orgifacts. The likes and dislikes for mentifacts and orgifacts can also shape the world. Liking and disliking of mentifacts such as democracy, justice, hope, love, leadership, etc. have shaped societies. Liking and disliking of orgifacts such as the Catholic church, the United Nations, and the United Way have similarly shaped society. In short, insight into the evolution of society will not only be gained by answering questions such as why do people like Sears, K-mart, Levi jeans and Honda automobiles; but how liking of these objects shaped society.

**Other Behavioral Models/Constructs**

**The Genesis of Behavioral Processes**

What is the implication of the evolution of objects on other behavioral processes and constructs? Our models of consumer behavior have a number of well defined constructs and processes - personality, motives, values, attitudes, and so on. Evolutionary theory would beg the question: "How have these constructs emerged and evolved?" This question is in need of expanded exploration which cannot be provided in this paper. Nonetheless scholars should attempt to understand, for example, how personality emerged and evolved, beyond the current explanations of temperament (e.g., Buss and Plomin 1984) and of biochemical formation (e.g., Eysenck 1967; Gray 1971). Single-cell organisms do not appear to have personalities. In the assemblages of matter since the Big Bang when and how did personality emerge? This question should be repeatedly asked for behavioral processes which extend across behavioral theories. The understanding of the genesis of behavioral processes is central to the advancement of the behavioral sciences. If one believes that objects fail to evolve, then there can be no universal laws of behavior that are time immortal. This is because laws between different events, "A" and "B" can not exist until A and B emerge; if there was a proposed law, but no A and B then the proposed law could not be empirically tested and thus never receive the status of a law. Therefore the only truly universal laws and universal theories would be theories of evolution.

**Coevolution of Buyers and Sellers**

The discussion of evolutionary processes also implies that theories of behavioral processes in marketing should simultaneously consider both buyers and sellers. John Howard (1983) in his "Marketing Theory of the Firm," which consid-
ers buyer and seller behavior, has made an initial attempt in this direction. Each group is the environment of the other and thus must be considered in our theories of marketing behavior. It is also possible and indeed likely that buyers and sellers are engaged in a coevolutionary process in which each slows, constrains or stimulates the evolutionary processes of the other. For illustrative purposes consider man as being initially regulated by the raw physical environment. If man had a desire or need and the environment did not supply it then the motivational aspect of the desire or need would be extinguished. Today business institutions appear to be the arbiters of supply by taking matter from the physical environment and transforming that matter into bundles of benefits that are desired. The institutions appear to regulate consumers and consumers mutually regulate institutions. The consumer is the environment of the institution and selects out desirable benefits and thus allows firms to profit and survive. At the same time the institutions are the environment of the consumer and regulate consumer behavior, if the consumer has a desire for a benefit bundle that is not profitable to the institution given the maximal price the consumer is willing to pay then the consumer’s desires will not be fulfilled and should eventually become extinct. Because buyers and sellers regulate each other their behavioral processes would appear to be coevolutionary.

Behavior As A Process

Most theoretical models of social psychological, consumer, and buyer behavior recognize at least implicitly the existence of underlying processes. However, empirical tests have generally ignored the processes, or stages, of consumer behavior. Such suggestions that theory testing takes on a process orientation and incorporates both buyers and sellers are not novel. However, this paper's review of evolutionary theory reinforces the centrality of these directions for future research. Too often research in marketing has been qualified by statements such as...''While buyers' decisions in the aggregate ultimately feedback to the firm, causing it to modify its marketing program, the data collection period is so short in this case that price, receipt of samples, advertising, and display can be viewed as being determined outside the system" (Farley and Ring 1970, p.429).

Management of the Firm

The matching of benefits and desires is argued to be a naturally occurring evolutionary process. A function of management is to facilitate this evolutionary process by proactively practicing the marketing concept. Firms which practice the marketing concept will be adopted or selected by consumers; those that do not should eventually become extinct.

Managers may wish to seek those areas where benefits and desires are poorly correlated because such areas represent possible market niches to be filled with objects (i.e. products). If benefits and desires are highly correlated then a firm will not gain a long-term competitive advantage by offering desired benefits.

One dimension explored by biologists may be applied to this discussion. Evolutionists have distinguished between "K-species" and "r-species" (e.g., Wilson 1975, and an interpretation for economic systems, Hirshleifer 1977). The symbol r represents the maximum rate of Malthusian growth, which occurs when the environment does not impose growth constraints. R-species tend to have high birth rates, early reproduction, and short lives. On the other hand, K (i.e., K-species) signifies the carrying capacity of the environment at a zero time-rate of change. K-species develop more slowly, have larger body sizes, produce in smaller numbers, live longer, have more carefully optimized offspring, and compete through superior utilization of their environment. R-species survive on short-term disequilibrium conditions, but are eventually displaced by the more efficient K-species. Applied to firms, r-firms may be characterized by the use of opportunistic strategies, especially viable for products in early stages of the product life cycle, while K-firms may represent firms which have effectively captured long-sustaining needs of segments of consumers, and thus have been able to maintain themselves through more mature life cycle stages. The dichotomy is admittedly speculative, but it does provide an alternative perspective of the value of the marketing concept through successive stages of the product life cycle.

Conclusion

Among numerous others, Thorstein Veblen
(1898) and Donald Campbell (1975) have argued for the adoption of an evolutionary perspective of behavioral processes. In the marketing literature Bartels (1968) in "The General Theory of Marketing" argues that marketing is not static and thus we need a theory of social change and marketing evolution. This paper attempted to demonstrate that an evolutionary perspective can provide insight into behavioral and marketing processes, and in particular, attitudinal processes. Preliminary theoretical and empirical evidence was offered for the conclusion that desires and beliefs of benefits are positively correlated as a result of an evolutionary process. The evolutionary process suggests that objects are extinguished which fail to offer desirable benefits, and the marketing concept can be argued to be a positive, naturally occurring phenomenon. Mutations or exceptions exist but over the long run the desires of an organism must be filled by benefits in the environment.

**FIGURE 1A**
RELATION BETWEEN BELIEFS AND DESIRES ACCORDING TO CONTEMPORARY ATTITUDE THEORY

![Diagram](BELIEFS \rightarrow 0 \rightarrow DESIRES)

**FIGURE 1B**
RELATION BETWEEN BELIEFS AND DESIRES ACCORDING TO EVOLUTIONARY THEORY

![Diagram](BELIEFS \rightarrow + \rightarrow DESIRES)
**Figure 2A**
Variation in Benefits and Desires

**Figure 2B**
Selection in Benefits and Desires

**Figure 3**
Evolution of the Brain and Modes of Behavior

<table>
<thead>
<tr>
<th>Evolutionary Stage</th>
<th>Type of Behavior</th>
<th>Basic Model of Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medulla</td>
<td>Instinctive</td>
<td>Needs (\rightarrow) Actions</td>
</tr>
<tr>
<td>Limbic</td>
<td>Hedonistic</td>
<td>Needs (\rightarrow) Emotion (\rightarrow) Actions</td>
</tr>
<tr>
<td>Neocortex</td>
<td>Cognitive</td>
<td>Needs (\rightarrow) Emotions (\rightarrow) Actions (\rightarrow) Cognitions</td>
</tr>
</tbody>
</table>
Footnotes

1. An emergent form is the first occurrence of a new structure.
2. Throughout this paper, individuals are assumed to be able to perceive benefits which are associated with a stimulus object. Such an assumption has been a necessary condition of mainstream explanations of conditioning of beliefs (e.g., Ajzen and Fishbein 1975).
3. The same phenomenon can be explained with numerous other theories, such as with consistency theories and theories of attribution, from social psychology.

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