Implications of Motivating Operations for the Functional Analysis of Consumer Choice

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The present article introduces the concept of Motivating Operation (MO) to the context of consumer choice and discusses the function of the concept of MO in the context of the Behavioral Perspective Model (BPM). Including MO as part of the consumer behavior setting leads to a more comprehensive analysis and, as a result, improves our understanding of the complex world of contingencies operating within consumer situations. First, the concept of MO helps to distinguish between discriminative and motivational functions of antecedents in the consumer behavior setting. Second, the MO concept includes both unlearned and learned motivating effects. Third, we will argue that some types of rules could also be MOs. A functional analysis of consumer choice should take into consideration the concept of MO because it is a contribution to the ongoing discussion to describe and classify antecedent variables that influence consumer behavior.

KEYWORDS Behavioral Perspective Model, consumer choice, establishing operations, motivating operations

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In studying behavior in general and consumer choice specifically, it is important to examine variables that specifically influence or maintain such behavior. Often such variables are labeled as “motivation,” but within behavior analysis the term *motivating operation* (MO) is used. MO is defined as “an environmental event that first establishes (or abolishes) the reinforcing or punishing effect of another event and second, evokes (or abates) behaviors related with that event” (Laraway, Snycerski, Michael, & Poling, 2003, p. 412). Thus, an MO has two main effects; first, it establishes or abolishes the reinforcing (or punishing) effect of another event (the *value-altering effect*) and second, it evokes (or abates) behaviors related with that event (the *behavior-altering effect*). The term *establishing operation* (EO) is used to refer to MOs that increase the reinforcing or punishing effectiveness of other events. The term *abolishing operation* (AO) is used to refer to MOs that have the reverse effect to EOs. In other words, they reduce the effectiveness of other events to function as reinforcers or punishers. Skinner (1938, 1953) initially spoke of such phenomena in terms of drives. He also used the term “predisposition” to include so-called emotional operations. The more general term “establishing operation” was used for the first time by Keller and Schoenfeld (1950) to describe motivating events, then by Millenson (1967), and later by Michael (1982, 1993, 2000) in his introductory publications on the topic. Michael has since suggested that it should be replaced with the omnibus term motivating operations (Laraway et al., 2003).

The concept of MO has received a considerable amount of conceptual and empirical attention within the applied behavioral literature (Iwata, Smith, & Michael, 2000). The notions revived in Michael’s treatment of the concept of EO have considerable relevance to conceptions of problem behavior and its assessment, treatment, and prevention and enables a more complete account of problem behavior to be given, both generally and with respect to particular individuals (McGill, 1999). While most of the discussion of MO has been in the context of analyses of different types of problem behavior (Iwata et al., 2000), incorporating the concept into other areas has important implications for research and practice. Agnew (1998) introduced the concept of EO to organizational behavior management. In a recent article, Olson, Laraway, and Austin (2001) give a more thorough discussion on how the concept of EO can be incorporated into the understanding of organizational behavior management (see also Hayes, Bunting, Herbst, Bond, & Barnes-Holmes, 2006). Even if the necessity of the concept has been discussed (Luthans, 2001), we find the concept viable, and that the class of motivational variables, defined by Michael (1982, 1993, 2000), will help advance the understanding of workplace motivation. Another example is an article by Tapper (2005) on the topic of appetite research. Tapper emphasizes the main ways in which the concept differs from other theories of motivation employed in appetite research and concludes that the strengths of the MO approach can be seen to lie in its utility for intervention work.
and in its applicability to both regulatory and nonregulatory feeding, and to both cognitive and noncognitive influences.

However, the concept of MO has not achieved the same recognition in those fields of consumer behavior research that are using behavior analysis for the study of consumption. For example, DiClemente and Hantula (2003) provide a detailed summary of research topics within behavior psychology and consumer choice, but they do not mention the concept of MO or the term “motivation” in general, which is somewhat ironic given that the first behavior analytic consumer research by Watson emphasized motivational variables (DiClemente & Hantula, 2000). It seems that the only contribution within the modern consumer behavior literature is Foxall (2004; 2005), who has revealed the behavior-analytic terms developed by Michael (1982, 1993, 2000).

Given that the concept of MO has not yet been incorporated in the understanding and explanation of consumer choice, this article discusses how it can be incorporated into the functional analysis of consumption. To reach this objective we will show how the concept of MO can be incorporated into the Behavioral Perspective Model (BPM), a consumer behavior model developed by Foxall (1990/2004, 2001, 2007a). The arguments for choosing the BPM are, first, that this model is based on the three-term contingency from behavioral psychology, and for that reason is the most obvious choice when synthesizing the concept of MO and consumer choice, and second, that the BPM has generated considerable conceptual and empirical research and is, therefore, a consumer model that researchers and practitioners who study consumer choice from a functional analytic perspective are familiar with or can easily assimilate.

First, we introduce the BPM as a model that uses functional analytical methods when studying consumer behavior. Then we discuss the concept of MO in relation to the consumer behavioral model by looking at three aspects from the existing literature: (a) the distinction between discriminative stimuli (SDs) and MOs in the consumer behavior setting, (b) the value-altering effect and behavior-altering effect of MOs, and (c) unconditioned and conditioned MOs. In addition, (d) rule-governed behavior is added as a fourth aspect of our synthesis of the concept MO and consumer choice. The concluding section proposes topics for further investigation.

CONSUMER CHOICE FROM A BEHAVIORAL PERSPECTIVE

The BPM was first described in Consumer Psychology in Behavioral Perspective (Foxall, 1990/2004), and was recently reviewed in Explaining Consumer Choice (Foxall, 2007a). The BPM framework has proved successful in offering a viable operant interpretation of such aspects of consumer choice as purchasing, consumption, saving, the adoption and diffusion of innovations, attitudinal-behavioral relationships, the marketing firm, and environmental conservation (Foxall, 2005, 2007a; Foxall, Oliveira-Castro, James, Yani-de-Soriano, &
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Sigurðsson, 2006; Foxall & Yani-de-Soriano, 2005). It has also given rise to a program of empirical and applied work that has shown its relevance to the role of situational factors in attitude formation and attitudinal-behavioral consistency, brand choice, and marketing management (Davies, Foxall, & Pallister, 2002; Foxall, 1996, 1999a, 1999b, 1999c, 2004; Foxall, Oliveira-Castro, & Schrezenmaier, 2004; Oliveira-Castro, Ferreira, Foxall, & Schrezenmaier, 2005; Oliveira-Castro, Foxall, & Schrezenmaier, 2006). Recent theoretical work, based on the empirical findings of some of this research, has again considered the inclusion of mediating stimuli and responses as explicators of affective-behavioral responses (Foxall, 2007a, 2007b, 2007c; Foxall & Greenley, 2000).

Figure 1 shows the main perspective of the BPM. The central explanatory component of the BPM is the consumer situation, represented by the interaction of learning history and the current consumer choice setting, which exerts a direct influence on the shaping and maintenance of consumer choice in specified surroundings (Foxall, 2007a). This analysis is in line with the behavioral systems approach (Abernathy, 2008; Alavosius, Getting, Dagen, Newsome, & Hopkins, 2009). A consumer situation is more specific than a setting; the consumer situation is defined and circumscribed not only by the consumer setting variables that signal utilitarian and informational consequences of behavior, but also by the salience of those S^D^s as determined by the consumer's learning history. For a consumer in a novel shopping situation, the neutral stimuli are transformed by this learning history into S^D^s that signals the probable outcomes of a particular behavior in the setting by their intersection with the consumer's pertinent history of reinforcement and punishment. It is this learning history that adds meaning to otherwise neutral setting stimuli by investing them with the consequences of previous approach-avoidance behaviors in similar circumstances.

Behavior produces consequences and, in a consumer behavior context, the BPM framework, defines these consequences as utilitarian (reinforcers

FIGURE 1 The Behavioral Perspective Model.
or punishers) and informational (reinforcers or punishers) (Foxall, 2007a). Utilitarian reinforcement is the tangible functional and economic benefits that stem from purchase, ownership, and consumption. Owning any motor car provides in some degree the convenience of door-to-door travel, for instance. Informational reinforcement is socially and personally mediated insofar as it consists in performance feedback on how well one is doing as a consumer (“I have almost completed my Christmas shopping”), or as a citizen (“They loved my Porsche!”). Another example of socially-mediated reinforcement is the social attention and appreciation lavished on the person wearing fashionable clothes or expensive jewelry. Economic behavior includes a reciprocal transfer of rights and is, when it occurs, simultaneously reinforced and punished (Alhadeff, 1982). Utilitarian punishment is the cost of consuming: relinquishing money, time-consuming registration before payment when shopping on the Internet, forgoing alternative products, and so on. Informational punishment is an aversive consequence of consumer choice mediated by the social network. Consumers who buy and smoke cigarettes may learn that this behavior produces negative social attention and disapproval within their social network.

Therefore, consumer behavior setting scope is the extent to which the current consumer behavior setting compels a particular pattern of behavior (such as shopping on the Internet in which one expects the consumer must log on to the Web, find the Web shop, find products, compute their value, put them in the shopping basket, and go to confirm order procedure). The consumer behavior setting consists of the current SDs that signal reinforcement and punishment contingent upon the emission of a purchase or consumption response. These settings of consumer behavior comprise the stimuli that form the social and physical environment (Barker, 1968). Stimuli that compose the consumer behavior setting may be (a) physical (e.g., point-of-purchase promotion, store brand), (b) social (e.g., the salesperson, other customers in the shop), (c) temporal (e.g., opening hours, festivals like Halloween), or (d) regulatory (e.g., self- and other-rules that specify contingencies) (Foxall, 2005). The consumer’s learning history is in the BPM manifested within a particular behavior setting; prior learning establishes what will act as an SD in that setting by embodying the consequences, reinforcing and punishing, of earlier behavior in the presence of the relevant setting elements. So, if previous shopping on the Internet has produced consequences such as economic fraud, the consumer will probably learn that the Web is not a safe place to do shopping.

Although the original model has been gradually refined, it has remained broadly, though not uncritically, within the bounds of behavior psychology. In other words, its underlying orientation has been that of the “contextual stance” (Foxall, 1999a), which interprets behavior by reference to the person’s learning history and the behavior setting in which this person is currently situated. The model has been shown by a growing cadre of scholars to generate
empirical research that elucidates both practical and theoretical facets of consumer and marketer behavior (Foxall & James, 2001, 2003; Foxall et al., 2004; Foxall & Schrezenmaier, 2003; Foxall & Yani-de-Soriano, 2005; Newman & Foxall, 2003; Oliveira-Castro et al., 2005; Oliveira-Castro et al., 2006). The concept of motivation, however, requires further analysis in this context.

**THE FUNCTION OF MOTIVATING OPERATIONS**

**IN THE BEHAVIORAL PERSPECTIVE MODEL**

Behavior analysis has traditionally described the motivational function in terms of deprivation, satiation, and preexisting or antecedent aversive stimulation. However, Michael (1982) reintroduced the EO/MO to behavioral psychology and distinguishes between discriminative stimuli and motivational functions of events, operations, or stimulus conditions, which are said to have been often misclassified.

**Distinction Between Discriminative Stimuli and Motivating Operations**

In describing the motivational functions of events, operations, or stimulus conditions, Michael (1982) is careful to distinguish them from the altering effects of the S\(^D\). The S\(^D\) evokes behavior as a result of a history of being correlated with an increased availability of a particular reinforcer. Hence, a fast food restaurant sign may act as an S\(^D\) for food since in the past its presence has been correlated with the availability of food. MOs are correlated with the differential effectiveness of a reinforcer (or punisher), that is, the extent to which the consequence is “reinforcing” (or “punishing”) in that situation. Thus, while long periods without food (an MO) increase the value of food, a fast food restaurant sign (the S\(^D\)) does not. To put it in nonbehavioral terms, an MO determines how much the consumer wants something, whilst an S\(^D\) signals its availability.

From Michael’s arguments (1982, 1993, 2000; see also Schlinger, 1993), the BPM ought to make explicit a distinction between S\(^D\) and MO in the consumer behavior setting. This is important because it clarifies the difference between antecedent events that serve motivational functions and those stimuli within the setting that influence the occurrence of an operant response. Studies of consumer choice have been conducted where the antecedents have been classified as S\(^D\)s, whereas MO most likely would have been a more accurate explanation. One example is the study by Martinko (1986) on using prompts in a consumer purchase situation. The organization that commissioned the study marketed a unique beer. Over a fifteen-year period, the market share of the product had declined considerably. A field experiment with prompts was conducted in four different sales locations. Prompts were defined as S\(^D\)s, which are introduced into the
environment to cue purchase behavior. In the first three locations, the prompt was delivered as customers were ordering lunch and took the general form of “That’s a nice lunch; it would go well with a ____.” The fourth field trial took place in the evening. In this case, the prompt took the form of “It’s a nice day for a ____.” During each baseline and intervention period, the frequencies of target product versus other product purchases were calculated. In all sales locations the proportions of sales of the target product were significantly greater during the intervention as contrasted with the baseline periods.

One question raised by this study is to what extent the treatment (prompt) can be defined as an $S^D$. For the verbal prompt in Martinko’s (1986) experiment to qualify as an $S^D$, the behavior must be evoked as a result of a history of correlation with greater availability of the relevant reinforcer (Michael, 1982). A reasonable argument is that the target product is equally available with or without the verbal prompt, and for that reason the prompt cannot be functioning as an $S^D$. A plausible explanation is that the treatment (verbal prompt) in Martinko’s experiment is an MO because its function is related to the effect of the reinforcer. Prompts such as behavior intervention with consumers are used frequently (DiClemente & Hantula, 2003). For example, verbal prompting procedure has been used to increase sales (Martinko, White, & Hassell, 1989; Milligan & Hantula, 2005; Ralis & O’Brien, 1986), to reduce theft (Carter & Holmberg, 1992), solve waste disposal problems (Craig & Leland, 1983), and control pollution (Geller, Farris, & Post, 1973). This type of verbal stimulus can be categorized as “motivating augmentals” (Zettle & Hayes, 1982).

In short, MOs change how strongly consumers want something; $S^D$s change their chances of getting it. From this we can draw the conclusion that MOs are antecedent events that must be part of the consumer behavior setting in the BPM.

The Value-Altering Effect and Behavior-Altering Effect of Motivating Operations

As we have seen, MOs have two effects (Laraway et al., 2003): the value-altering effect and the behavior-altering effect. The first effect is related to the consequences of responding (value-altering effect) and the second is the effect of the responses related to those consequences (behavior-altering effect). For example, when driving on the highway, a fuel gauge that indicates low level of fuel increases the value of fuel (value-altering effect). Simultaneously, a low level of fuel alters the frequency of responses that have been reinforced by access to fuel (behavior-altering effect), for example, looking for a gas station, driving into a gas station, and refuel.
VALUE-ALTERING EFFECTS

Based on the different value-altering effects defined by Laraway et al. (2003) we can distinguish eight categories in a consumer context: establishing operations (EOs) and abolishing operations (AOs) related to utilitarian reinforcement and utilitarian punishment, and EOs and AOs related to informational reinforcement and informational punishment. Table 1 shows an example of the value-altering effects of MOs related to consequences of consumption.

BEHAVIOR-ALTERING EFFECTS

The behavior-altering effect subsumes two effects of MOs: the evocative effect and the abative effect (Laraway et al., 2003). The evocative effect represents an increase in the consumer’s responses, and the abative effect represents a decrease. According to Laraway et al. (2003), EOs for reinforcers and AOs for punishers have evocative effects. For example, a bad headache has a reinforcing-establishing effect on the consequence of buying and taking aspirin.

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<th>TABLE 1 Example of Eight Value-Altering Effects of Motivating Operations (MOs) in Different Consumer Contexts</th>
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<td><strong>Consequences of consumption</strong></td>
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<td>Utilitarian reinforcement</td>
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<td>Utilitarian punishment</td>
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aspirin, and simultaneously evokes purchase and consumption of aspirin. AOs for reinforcers and EOs for punishers have abative effects. Food satiation has a reinforcing-abolishing effect on the consequence of buying and eating food, and simultaneously abates purchase and consumption of food.

According to Michael (2000), the value-altering and the behavior-altering effects of MOs occur simultaneously but independently. Michael does not explore the extent of the independence between the value-altering and the behavior-altering effects. However, according to Tapper (2005), such a view is consistent with neurological research related to, for example, “liking” for food rewards and “wanting” food rewards. Liking is described as the sensory pleasure of eating, while wanting is described as the disposition to eat (Berridge, 1995). Liking is measured by assessing the organism’s affective reactions to food and wanting by measuring actions that are performed in order to obtain food. Thus, responses associated with liking and wanting overlap with those associated with value-altering and behavior-altering effects (see also Foxall, 2007a, 2007b).

Unconditioned and Conditioned Motivating Operations

All organisms encounter motivating events, operations, or stimulus conditions that are not learned. They depend upon the evolutionary history of the species, and vary from species to species. This aspect of the value-altering and the behavior-altering effects that result in an MO is classified as unconditioned (Michael, 1982, 1993). Deprivation of, for example, food, water, activity, and sleep, are likely to act as unconditioned motivating operations (UMOs). However, most antecedent events, operations, or stimulus conditions that are arranged by marketing companies have value-altering and behavior-altering effects as a result of the consumer’s learning history. Michael (1993) describes three types of conditioned motivating operations (CMOs): (a) surrogate, (b) reflexive, and (c) transitive. In a functional analysis of consumer choice it may be useful to distinguish between these three different types of CMOs.

Surrogate conditioned motivating operations (CMO-Ss) acquire their motivating effect as a result of being paired with another UMO, or an already established CMO, and produce effects that are identical to those of the original MO (Michael, 1993). A study by Calvin, Bicknell, and Sperling (1953) suggested that it may be possible to establish a CMO-S for food in rats. They placed rats in a distinctively striped box for 30 minutes a day over a period of 24 days. The first group of rats was placed in the box after 22 hours of food deprivation and the second group was placed in the box after 1 hour of food deprivation. Following the 24-day treatment phase both groups of rats were allowed free access to food in the striped box after 11.5 hours of food deprivation. The rats with a history of being in the box after a 22-hour deprivation period ate significantly more than those with a history of being in the box after a 1-hour deprivation period. Thus, by being reliably paired
with food deprivation, the striped box may have come to function as a CMO-S for food amongst the first group of rats. A human example is a person who frequently visits a fast food restaurant when he or she is food deprived. The restaurant environment, because it has been reliably paired with food deprivation, may become a CMO-S for food. If the person later visits the restaurant when not food deprived, for example to purchase a drink, the situation may occasion feelings of “hunger” and may result in the person purchasing and eating a hamburger. In addition, if a particular food tends to be eaten when the person is food deprived, but tends not to be eaten to the point of satiation, it is possible that the product itself could become a CMO-S for food. Support for this claim comes from a study by Durlach et al. (2002) in which drinks that were repeatedly paired with thirst appeared to become CMO-S for fluid consumption.

John B. Watson was convinced that marketing goods depended not upon an appeal to reason but upon emotional conditioning and stimulation of desire (see DiClemente & Hantula, 2000; Hantula, DiClemente, & Rajala, 2001). CMO-S is a concept that gives a functional explanation of how neutral stimuli acquire their motivating effect as a result of being paired with another MO, and produce effects that are identical to the original MO. This advances understanding of the interaction between classical conditioning and operant conditioning, which in consumer behavior research often has been solved by referring to internal processes in the form of attitude formation (e.g., Gorn, 1982; Stuart, Shimp, & Engle, 1987; Till, Stanley, & Priluck, 2008). However, further clarification and investigations on this topic are required.

Reflexive conditioned motivating operations (CMO-Rs) are previously neutral stimuli that acquire motivating functions by being correlated with some form of worsening or improvement (Michael, 1993). Where correlated with “worsening,” they establish their own termination as a reinforcer and evoke behaviors related with their termination. Where correlated with “improvement,” they establish their own termination as a punisher and suppress behaviors related with their termination. For example, if a rat learns that a particular tone is always followed by an electric shock, it will also learn to perform behaviors that terminate the tone. In this case the tone, as well as being a conditioned punishing event, is also a CMO-R that establishes its own termination as a reinforcer. Conversely, if a rat learns that a particular tone is always followed by food, it will also learn to suppress behaviors related with the termination of the tone. Here the tone, as well as being a conditioned reinforcer, is also a CMO-R that establishes its own termination as a punishing. Price is in a consumer context a stimulus that signals loss of a conditioned reinforcer and/or increased work effort (Alhadeff, 1982). Price is, from the concept of CMO-R, therefore a “worsening” that establishes its own termination as a reinforcer and evokes behaviors related with termination (e.g., leaving the shop). However, when the price is low (e.g., “Get 20% discount when you buy any sneakers this week”) it may abolish
its own termination as a reinforcer and abates behaviors related with termination (e.g., leaving the shop). Another example can be that a mobile phone has got a very good score on customers’ reviews (6 out of 6 stars). The good score from customers’ reviews will in this setting establish their own termination as punisher and suppress behaviors related with their termination like, for example, purchasing another mobile phone.

Transitive conditioned motivating operations (CMO-Ts) are previously neutral stimuli whose occurrence alters the reinforcing (or punishing) effectiveness of another stimulus and evokes responses that produce (or suppress) that stimulus (Michael, 1993). Michael (1982) uses an example that the sight of a slotted screw evokes a worker’s request to his assistant for the appropriate screwdriver. The screwdriver is just as available with or without the presence of a slotted screw (so the relation is not discriminative), but it is more reinforcing in the presence of the screw (the relation is motivating). A very simple consumer choice example can be that a sunny day establishes the reinforcing effectiveness of a sun protecting cream and evokes purchase and consumption of sun cream. The sunny day is in this example the CMO-T that alters the reinforcing value of the sun cream, and simultaneously evokes purchase and consumption of that product. When a consumer has bought a car, this event increases the reinforcing effectiveness of having care insurance. Many (probably most) forms of conditioned reinforcement or conditioned punishment are themselves conditional upon other stimulus conditions (Michael, 1993). This notion is often referred to by saying that conditioned reinforcing effectiveness is dependent upon a “context.” When a sports product manufacturer like Nike(tm) manufactures and advertises Nike Air Jordan(tm) shoes, it uses sports heroes like Michael Jordan as a spokesperson. By having a popular person wearing and promoting their shoes, they are attempting to increase sales through increasing the informationally-reinforcing values for their potential customers. Sponsorship, green marketing, and social responsibility are all common activities of this kind within marketing (see also Agnew, 1998). However, research on the motivating effects that these marketing initiatives have on consumer responses is rare.

Motivating Operations and Rule-Governed Consumer Behavior

Like any other behavior, consumer choice is often formed directly by its consequences. However, what consumers do sometimes depends on what they are told to do. Consumers often follow recommendations from friends, advertisements, brochures etc. Behavior that is mainly determined by verbal antecedents is defined as rule-governed behavior (Skinner, 1969; Zettle & Hayes, 1982). As pointed out by Poling (2001), discussions of MOs have paid relatively little attention to the importance of verbal behavior in altering the reinforcing or punishing effectiveness of environmental events. However, Schlinger and Blakely (1987) argue that the primary function of
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rules, which they perceive as verbal stimuli that specify relations among other stimuli and responses (“contingencies”), is to alter the behavioral function of those stimuli. The authors term rules “function-altering contingency-specifying stimuli” (cf., Hayes, 1989). Schlinger and Blakely (1987) argue, inter alia, that if rules alter the effectiveness of other stimuli as reinforcers or punishers (and also alter the likelihood of occurrence of behaviors that historically have produced those stimuli), then it appears proper to consider them as MOs.

Zettle and Hayes (1982) define three main functional units of a listener’s behavior: (a) *Pliance*, where the listener follows a verbal rule based on a history of socially-mediated consequences for the correspondence between the rule and the rulefollower’s behavior; (2) *Tracking*, which is rule-governed behavior under the control of a history of a correspondence between the rule and “natural” social or nonsocial contingencies (natural contingencies are those produced entirely by the exact form of the behavior in a particular situation); and (c) *Augmenting*, which is “rule-governed behavior under the control of apparent changes in the capacity of events to function as reinforcers or punishers” (Zettle & Hayes, 1982, p. 81).

Augmentals are particularly relevant to MOs. Augmenting is rule-governed behavior that alters the extent to which some event will function as a consequence. There are two types of augmentals (Zettle & Hayes, 1982). The first are *motivating augmentals*, which are rules that increase the value of an event that is already a functional consequence. This corresponds to how Schlinger and Blakely (1987) term rules (“function-altering contingency-specifying stimuli”). A motivating augmental is simply an antecedent verbal stimulus that has an evocative or abative effect on consumer choice, such as an advertisement with the message—“New Bloggo gets clothes whiter than ever before!” The second, *formative augmentals*, establish some new event as an important consequence. An example of a formal augmental can be the advertising message “You can also use this mobile phone as an MP3 player.” It is clear that augmentals could have an important function related to consumers’ motivation (see also Leigland, 2005). However, there should be a distinction between those conditioned MOs that are related to rule-governed behavior and those that are not.

The question arises whether an augmental is part of the setting or part of the consumer’s learning history. Strictly, along with other rules, it forms part of the verbal setting, but the influence of the setting on behavior is determined to some degree by the consumer’s learning history of rule-following. A mediating term reflecting the interaction of learning history and setting, the process in which neutral setting stimuli are transformed into Sରଃ and MOs, is found in the idea of consumer behavior setting scope (Foxall, 2004), which refers to the outcome of the transformation of these neutral stimuli and the consumer’s learning history into a consumer situation that stimulates or inhibits a particular approach or avoidance/escape behavior. Learning history, including past exposure and adherence to instructions,
bears on the current neutral setting, including the verbal setting, in order to
determine the current $S^D$s and MOs that will shape behavior. A further inter-
pretation would be that both MOs and $S^D$s are not part of either the consumer
behavior setting or the consumer's learning history but of their intersection;
learning history transforms the neutral environment into $S^D$s and MOs,
thereby generating the consumer situation (Foxall, 2007a).

CONCLUDING COMMENTS

This article has given a theoretical presentation of the concept of MO and
discussed its relevance to consumer behavior research. MO explicitly identi-
fies antecedent motivating events that previously have been underempha-
sized in the BPM. The concept of MO helps to distinguish between
discriminative and motivational functions of antecedents in the consumer
behavior setting. The behavior-altering effect, as a generic concept, sub-
sumes two effects of MOs: (a) the evocative effect and (b) the abative effect.
The evocative effect represents an increase in consumer responding, and the
abative effect represents a decrease in consumer responding. This distinc-
tion between the evocative effect and the abative effect of MOs is important
to the understanding and explanation of consumer choice. It gives a much
more comprehensive analysis not only to understand and identify which
MOs have a function to increase consumers' responses, but also to under-
stand and identify those MOs that have the opposite effect.

The principal motivation theory in consumer behavior research is goal-
setting theory (e.g., Dugree, O'Connor, & Veryzer, 1996), which assumes
that motivation and consumption are functions of goal accomplishment.
Consumers set goals on the basis of their values, and they select means that
they believe will help them achieve their desired goals (Dugree et al., 1996).
Motivation is believed to be highest when the goals set are difficult. How-
ever, goal-setting theory is limited to the cognitive component focusing on
rational behavior. The MO approach does not draw a distinction between
cognitive and noncognitive variables; all variables are accounted for by the
same processes (Tapper, 2005). This provides the concept of MO as being
just as applicable when explaining the motivating impact of promotion and
advertising as they are to explain the motivating effect from food deprivation.
Rule-governed behavior is an important class of consumers' behavior. We
propose that augmentals should be included as one important verbal MO
for consumer responses. We have also drawn attention to the need for a
distinction between general CMO and those MOs that can function as rules
(i.e., augmentals).

Empirical evidence has been provided for the importance of MO in
other areas (e.g., McGill, 1999; O'Reilly, Edrisinha, Sigafoos, Lancioni, &
Andrews, 2006; Vollmer & Iwata, 1991). One challenge related to consumption
is to what extent it is possible to do research on motivational operations in the complex world of contingencies operating within consumer situations. A solution to this challenge could be to accomplish research on motivational operations in an online consumer situation (for example, Smith & Hantula, 2005). By creating a simulated online store it could be possible to arrange variables and record responses in a way that is difficult to accomplish in a traditional shopping situation. One experiment that could be accomplished in order to study the function of MOs is to design different motivating conditions such as product rating (Fagerstrøm, 2010), product presentation (Sigurdsson, Engilbertsson, & Foxall, in press), in-stock status (Hantula, Rajala, & Bryant 1997; Rajala & Hantula, 2000), and shipping costs (Hantula & Bryant, 2005) in simulated online stores. Participants’ retention at each stage of the shopping process could be recorded through click streaming as participants move through the site, and finally the conversion rate for a product could be recorded.

We hope that this conceptual discussion will be useful in categorizing and emphasizing one important class of antecedent variables to the BPM, i.e., those antecedents that influence the effectiveness of consequences and behavior controlled by those behavioral consequences. This refinement of the BPM can lead to more sophisticated studies of consumer choice and, perhaps, open up further avenues of consumer behavior research, both conceptual and experimental.

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