

CUE MANAGEMENT

Using fitness cues to enhance advertising effectiveness

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Abstract

Current thinking on advertising processing highly parallels contemporary psychological theory and research revealing that there are two distinct brain systems at work in human information processing and decision making: System 1 (S1, evolutionarily old, unconscious/preconscious, automatic, fast, and intuitive) and System 2 (S2, evolutionarily recent, conscious, controlled, slow, and reflective). Indeed, state-of-the-art models of advertising processing equally distinguish two different persuasive routes: one in which the consumer focuses on the content of the ad (product/brand attribute information) and in which he/she engages in extensive and mostly conscious, elaborated information processing (S2), and one in which she/he processes the ad only superficially, quickly and quasi-automatically in terms of a handful of meaningful “cues” (S1). Regarding S2 advertising

processing, means-end-chain theory has been developed as a sound theoretical framework that can guide the advertising manager in designing advertising campaigns. However, regarding S1 advertising processing the question remains: What constitutes a meaningful cue?

In this paper, I will argue that both the idea of evolutionary old brain systems like the S1 systems (evolved “mental organs”) and the idea of cues activating those systems (“fitness cues”) are central to evolutionary psychology. Therefore this new science of the mind can provide a framework for cue management. I will also present the results of a large scale experiment investigating the impact these fitness cues can have on ad-likeability scores (as indicators of the advertising effectiveness to be expected). My findings highly support the validity and practical usefulness of the new insights provided by evolutionary psychology. My conclusion then is a suggestion for cue management to be developed as a new and legitimate form of advertising management based on evolutionary psychology.

Key words

Evolutionary psychology, cue management, advertising processing

INTRODUCTION

Current thinking on both advertising processing and consumer behavior is being revolutionized by psychological research which reveals that there are two distinct brain systems at work in human information processing and decision making (cf. Evans & Over 1996; Fine 2006; Gigerenzer 2000, 2007; Gigerenzer, Todd & The ABC Research Group 1999; LeDoux 1998; Montagu 2006; Myers 2002; Reber 1993; Stanovich 1999, 2004; for a good overview, see Frankish & Evans 2009). On the one hand, System 1 (S1) can be characterized as being evolutionarily old, unconscious/preconscious, automatic, fast, and intuitive. On the other hand, System 2 (S2) can be labeled as evolutionarily recent, conscious, controlled, slow, and reflective.

Until recently most research on consumer behavior has been (implicitly) framed in a S2 perspective, studying consumers as very rational human beings. However, we are now witnessing a revolutionary takeover of the field by researchers focusing their attention on S1 and the corresponding intuitive, irrational, gut-feeling-driven decisions consumers constantly make in their everyday life (Ariely 2009; Gigerenzer 2007; Hallinan 2009; Lunn 2008; Shermer 2008; Sutherland 2007).

As for advertising processing, the state-of-the-art models that currently dominate the literature – like the Elaboration Likelihood Model – generally distinguish two different persuasive routes and also point towards a dual-processing system in the brains of targeted consumers. One route strongly parallels S2. Taking this route, the consumer focuses on the content of the ad (relevant product/brand attribute information) and engages in extensive and – mostly – conscious elaborated information processing. The other route strongly

resembles S1. Here the consumer processes the ad only superficially, quickly, and quasi-automatically in terms of a handful of meaningful cues. A sound theoretical framework has been created around S2 advertising processing, in terms of means-end-chain theory. However, regarding S1 advertising processing the question remains: What constitutes a meaningful cue?

In this paper, I will introduce the idea of cue management as a form of advertising management which focuses on S1 advertising processing and therefore on the manipulation of advertising cues. As such, cue management can be opposed to means-end-chain management (MEC management, which focuses on S2 advertising processing) as two distinct forms or prototypes of advertising management. Contrary to MEC management, cue management currently lacks a strong theoretical foundation. I will argue that both the idea of evolutionary old brain systems like S1 (evolved “mental organs”), and the idea of cues activating those systems (“fitness cues”) are central to evolutionary psychology. Therefore evolutionary psychology can provide a framework for cue management purposes.

Firstly, I will synthesize the essence of the Elaboration Likelihood Model. Secondly, based on this model, I will make a distinction between cue management and MEC management as two distinct forms or prototypes of advertising management. Thirdly I will link these two types of advertising management to the S1/S2 information and decision making systems within our brains to make it clear that cue management appeals to the older and more emotional S1 system, whereas MEC management engages the newer and more rational S2 system. Fourthly, I will argue that a framework to answer the question of what constitutes a meaningful cue can be found within the new science of evolutionary psychology. Finally, I will present the results of my experiment investigating the impact of fitness cues on ad-

likeability scores (as predictors of the advertising effectiveness to be expected). My conclusion will be a suggestion for cue management to be developed as a new and legitimate form of advertising management based on evolutionary psychology.

1. THE ELABORATION LIKELIHOOD MODEL (ELM)

Thinking on advertising processing (for a very good overview, see Vakratsas & Ambler 1999) has come a long way since the old AIDA (Attention Interest Desire Action) model (Strong 1925:76, but attributed to E. St. Elmo Lewis in 1898). Since this preliminary yet seminal model, a myriad of other models have been proposed. Perhaps the two most influential (as measured by their appearance in standard textbooks on advertising management and before the Elaboration Likelihood Model was developed) were the Hierarchical Learning Model (a Think – Feel – Do model, see Lavidge & Steiner 1961) and the Low Involvement Model (a Think – Do – Feel Model, see Krugman 1965, 1977) – referred to by Jones (1990) as the strong and weak theories of advertising. Yet countless other models also arose, so that by the 1970s the field of persuasion was often characterized as replete with conflicting theoretical models and empirical findings, and lacking any coherent, unifying theory (Bagozzi et al. 2002:107).

In the 1980s, the introduction of the Elaboration Likelihood Model (ELM, see Figure 1) by Petty and Cacioppo (1981, 1986) provided such a coherent, unifying theory. As Bagozzi et al. (2002:107) remark, the ELM was a radically new model:

An examination of the persuasive theories advanced through the 1970s reveals that all share the similarity of offering *a* [their italics] process by

which attitudes are changed. The process hypothesized to guide persuasion differs, albeit, for each theory. (...) In stark theoretical contrast to these prior conceptualizations, the ELM hypothesizes that attitudes can be changed as a result of *different psychological processes* [their italics].

Indeed, the ELM groups the various processes by which the attitudes of the consumer can be changed through an advertising campaign into two conceptually distinct groups: those processes in which attitudes are changed as a result of effortful elaboration (referred to as the **central route** of persuasion) versus those processes in which attitudes are changed as a result of relatively non-thoughtful processes (referred to as the **peripheral route** of persuasion). The ELM predicts that a person's *motivation* and *ability* influence which of the two processes is most likely to guide persuasion. When individuals possess both motivation and ability, they are more likely to be persuaded by thoughtful elaboration on issue-relevant persuasive information (in the case of advertising: product/brand attribute information). That is, they are likely to consider the information presented, generate thoughts and feelings in response to that information, and change their attitudes as a function of these cognitive processes. However, sometimes – perhaps even most of the time (cf. *infra*) – consumers do not possess both motivation and ability to elaborate on the content of the ad. The ELM posits that, under these conditions, consumers' attitude change is most likely to be mediated by processes that do not entail thoughtful consideration of issue-relevant information (that is, elaboration). Instead, in those cases, individuals are likely to rely on associative processes such as classical conditioning (Gorn 1982; Stuart, Shimp & Engel 1987) or mere exposure (Zajonc 1980, 1984; Zajonc & Markus 1982), and less effortful inference processes such as heuristic shortcuts (Chaiken 1980) dealing only

with peripheral cues presented in the ad, rather than with the issue-relevant information (product/brand attribute information) provided by the ad (Bagozzi et al., 2002:108-109).

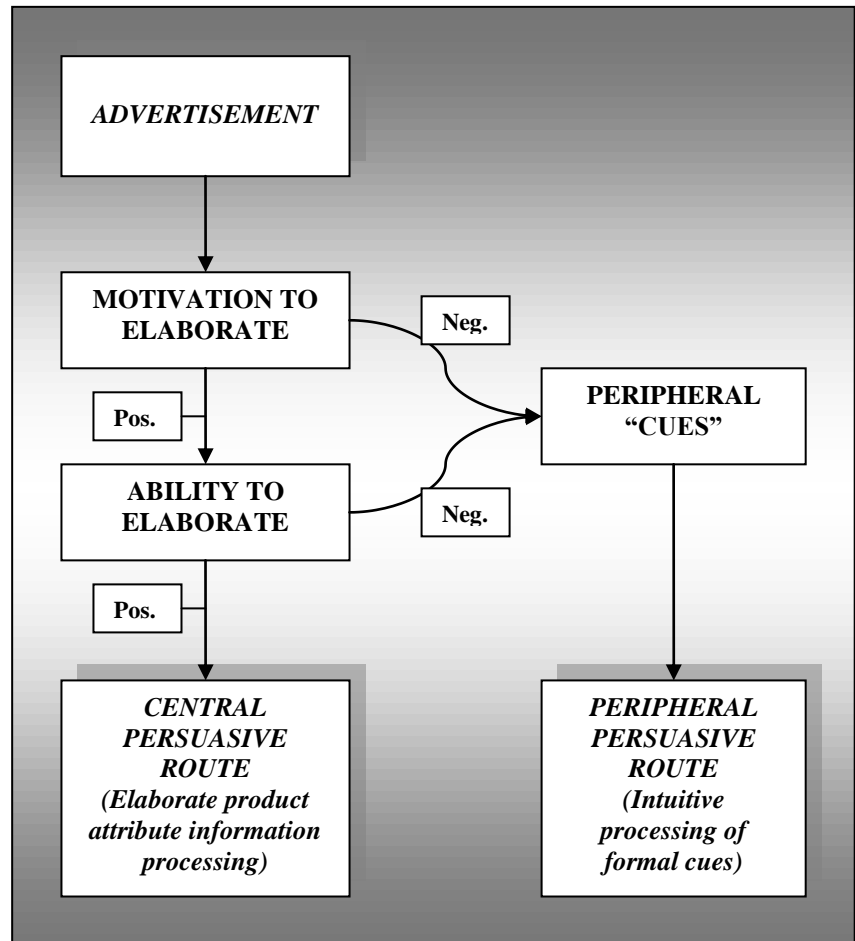


Figure 1: The essence of the ELM

The motivation and ability of the consumer are therefore hypothesized to determine which process underlies persuasion. The ELM advances the notion that these two factors influence the *likelihood* that an individual will *elaborate* persuasive information (that is, elaboration likelihood). However, as Bagozzi et al. (2002:112) note:

It is important to note that elaboration likelihood is conceptualized as a continuum, rather than as two discrete states (...). As individuals move from

one end of the continuum to the other, the amount of effort they expend on thoughtfully considering the issue-relevant information ranges from none at all to scrutinizing and considering all information.

2. MEANS-END-CHAIN MANAGEMENT AND CUE MANAGEMENT

Nevertheless, the ELM enables us to make a distinction between two prototypical forms of advertising management (that is, the process of planning, implementing, and evaluating an advertising campaign) (see also Mitchell & Olson 1981; Shimp 1981): one with a focus on the central route (trying to create a positive brand-likeability by providing the consumer with relevant information about the product/brand's attributes), and one we could call "cue management," with a focus on the peripheral route (trying to enhance the brand-likeability by creating ads with a high ad-likeability by way of inserting the right cues in the ad).

When the advertising manager wants to design an advertising campaign in which the central route prevails, a specific theoretical framework is at his/her disposal: means-end-chain theory (MEC theory). MEC theory was originally developed for relating consumers' product knowledge to their self-knowledge (Gutman 1982; Olson and Reynolds 1983). Knowledge is presumed to be organized in a hierarchy, with concrete thoughts linked to more abstract thoughts in a sequence progressing from *means* to *ends*. As Gutman (1982:60) points out:

Means are objects or activities in which people engage. Ends are valued states of being such as happiness, security, or accomplishment. A means-

end chain is a model that seeks to explain how a product or service selection facilitates the achievement of desired end states.

As such, MEC theory comes down to a radical extension of early approaches to the topic of product meaning. These tended to be from the product attribute perspective, whereby meaning was tied to the physical, observable characteristics of the product. As such, they failed to recognize any type of personal meanings derived from those attributes. Within MEC theory, product meaning was first expanded to take into account both the functional and the nonfunctional benefits that attributes represented for the consumer. The focus was subsequently broadened further to cover yet higher levels of abstraction, that is, personal values. In essence, MEC theory comes down to the application of the personal values perspective to consumer understanding. To the advertising manager, MEC theory is an invaluable resource in defining which “issue-relevant information” to include in the ad for two reasons: (1) rather than concentrate on a particular level of product or brand meanings, it incorporates all levels into a conceptual framework, and (2) it focuses on the associations (i.e., derived meanings) between the levels. These associational linkages provide an understanding of how consumers interpret product attributes (*means*) as representing benefits to them (referred to as *consequences*) and how these benefits are ultimately translated into personal values (*ends*) (see Figure 2). It is this associational element of the MEC model that offers keen insight into the meanings that consumers derive from products and ads (Batey 2008:21-22).

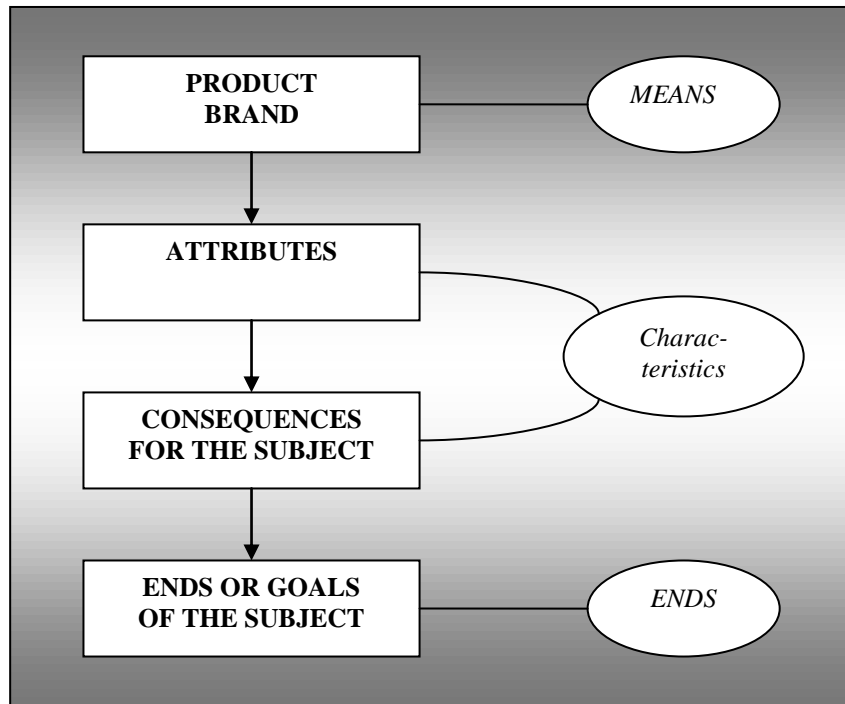


Figure 2: The MEC model

The relationship of means to ends is of course many-to-many, since a given end can be achieved by more than one alternative means, and a given means could be serving any of several ends. To illustrate this with an example, one can imagine the following MEC in the brain of a particular consumer, built around the concept of *practicing sports*.

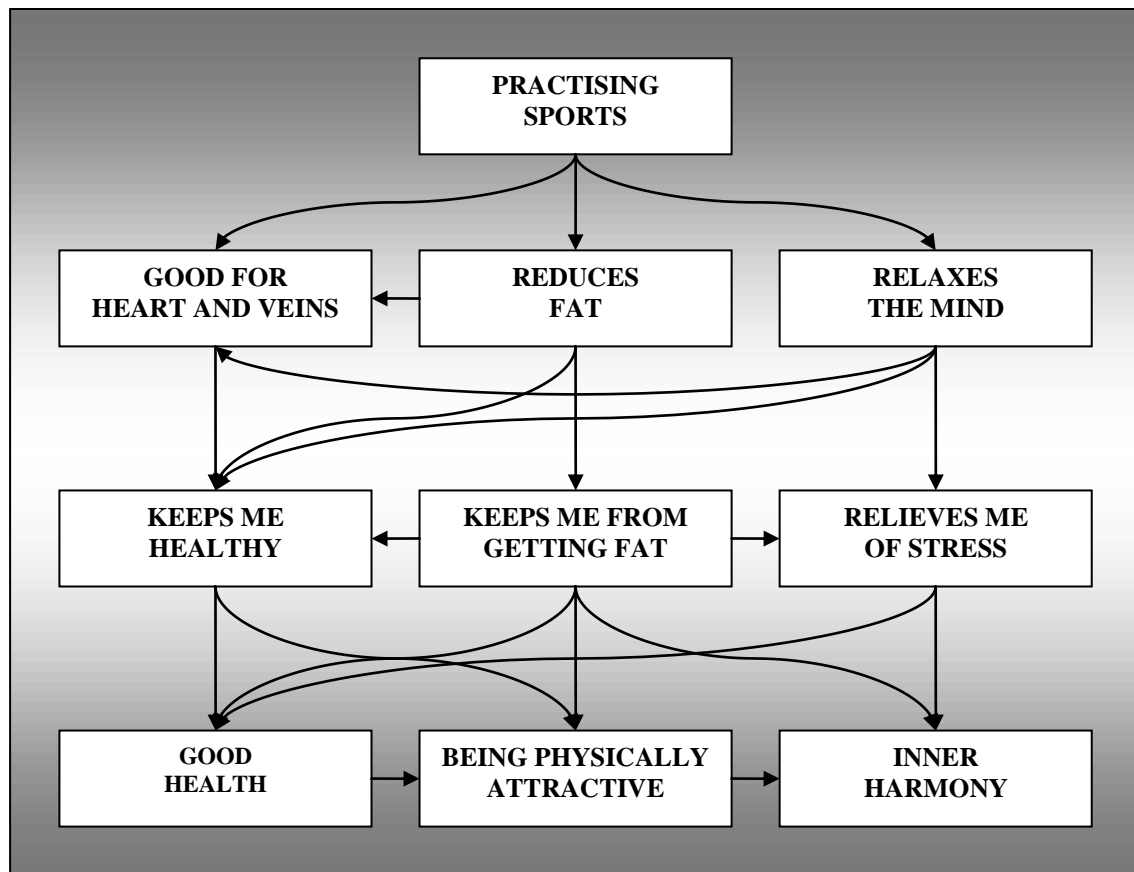


Figure 3: An example of a concrete MEC

It is obvious that MEC theory constitutes a sound framework for MEC management, since it enables the advertising manager to investigate and specify which “issue-relevant information” (cf. the ELM) should be included in the advertising campaign when the focus is on the central route of persuasion. Moreover, the advertising manager can rely on specific research methods that have been proposed in addition to the MEC model (Pieters et al. 1995). However, sometimes – perhaps even most of the time – consumers don’t have the motivation *and* the ability to elaborate on the issue-relevant information contained in the ad. Indeed, it can be expected that the average consumer, in dealing with the average ad in an average market, more often takes the peripheral rather than the central route, since she/he generally lacks the motivation and/or ability for effortful elaboration. Low motivation may

be due to a high level of product homogenization (making brands undifferentiated in terms of technical/functional attributes), to widespread quality guarantees (erasing differences in terms of general product quality), to the fact that the consumer knows that advertising does not offer neutral, unbiased (and therefore valuable) information, and to the consumer's previous brand experiences. Low ability to elaborate may be due to the complexity of the contemporary marketing scene confronting the consumer, with countless ads for countless brands, the limited time that a consumer has available for processing ads, the often distracting environment in which she/he is exposed to the ad, or the unfortunate timing of the exposure of the consumer to the ad. Having to deal with a consumer who lacks either the motivation or the ability to elaborate on the ad, it makes little sense for the advertising manager to design an ad based on MEC management. In these situations, it would make more sense to insert meaningful cues in the ad that can impact consumers' attitudes. I will call this (proto)type of advertising management cue management, so as to distinguish it from MEC management as the other (proto)type of advertising management – at least as suggested by the ELM. Figure 4 shows an example of how an ad for toothpaste for kids could look like when conceived from a MEC management perspective versus a cue management perspective.

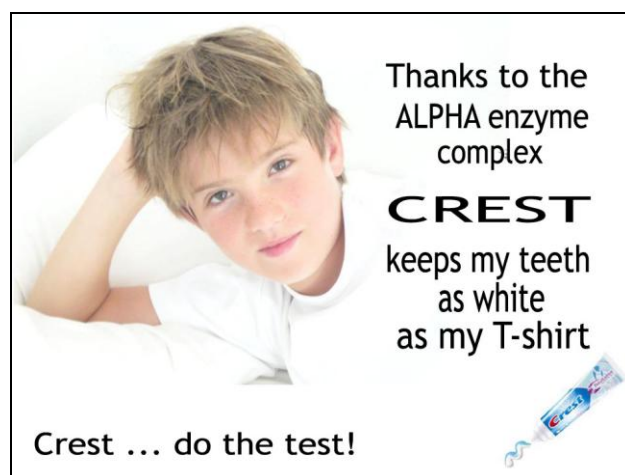




Figure 4: An example of an ad campaign for toothpaste for kids.

The first is an ad conceived from a MEC management perspective.

The second is an ad conceived from a cue management perspective.

Notice that, in the first ad, the advertising manager provides the consumer with issue-relevant information that enables him/her to make a connection between concrete product attributes (alpha enzyme complex), consequences (having white teeth), and his/her personal values (looking good). The ad stimulates elaborate processing: Do I want a toothpaste that makes my children's teeth white or do I rather want a toothpaste that keeps their teeth healthy? What is an enzyme complex? Should I do the test? In the cue management version of the ad (the lower version), the advertising manager simply wants the consumer to make a connection between the cue (a cute child) and the brand, so that the positive emotions or feelings elicited by the cue get transferred to the brand, thus influencing brand-likeability in a rather non-thoughtful way.

Contrary to MEC management, cue management still lacks a sound theoretical framework. Indeed, until recently, most work on advertising processing has been focused on S2 processes using the MEC framework. The concept of “advertising cues” has hardly been given any serious attention (although much research has been done on the impact of specific cues such as music, celebrities, humor, etc.). The concept of “cues” was actually first used by Lorenz (1939). Hasson (1994) defines a Lorenzian cue as any feature of the world, animate or inanimate, that can be used by an animal as a guide to future action. I will argue that evolutionary psychology can provide a refined framework for understanding the workings of these cues. Before I turn to the central question of cue management – that is, what constitutes a meaningful cue for a given target audience – I will first consider how the ELM perspective fits into a broader perspective on human information processing and decision making. This will enable us to clarify the link between cue management and evolutionary psychology.

3. THE TWO MINDS OF THE CONSUMER

Thus far, I have outlined how the ELM posits that consumers’ attitudes can be formed and/or changed by one of two psychological processes. Attitudes can be changed as a result of relatively effortful consideration of the issue-relevant information central to the persuasive message, in which case the subsequent attitudes are the result of cognitive responses to that information. These processes are at the core of what I have called MEC management. Attitudes can alternatively be changed as a result of relatively non-thoughtful processes, in which case the subsequent attitudes are the result of pairing the attitude with a cue that is not diagnostic of the central merits of the persuasive information. These

processes are at the core of what I have called cue management. As Bagozzi et al. point out, it is crucial to understand that these two (groups of) processes are fundamentally “qualitatively different” (2002:119).

Over the past decade, an exciting body of work on human information processing and decision making has explored this idea of a fundamental duality in the human mind in greater detail. Researchers – working on various aspects of human psychology, including deductive reasoning, decision making, and social judgment – have accordingly developed “two mind” theories. As Frankish and Evans (2009:1) put it: “These theories come in different forms, but all agree in positing two distinct processing mechanisms for a given task, which employ different procedures and may yield different, and sometimes conflicting, results.” Typically, one of the processes is characterized as fast, effortless, automatic, nonconscious, heavily contextualized, and undemanding of working memory, and the other as slow, effortful, controlled, conscious, decontextualized, and demanding of working memory. These theories then claim that human cognition is composed of two multi-purpose reasoning systems, usually called System 1 and System 2 (S1 and S2), the operations of the former having fast-process characteristics, and those of the latter having slow-process ones (Evans and Over 1996; Stanovich 1999, 2004). In their overview article, Frankish and Evans (2009:15) neatly summarize the differences between S1 and S2 as put forward by the different authors of “two mind” theories. An overview of the most salient characteristics is given in Table 1.

Table 1: Features attributed by various theorists to S1 and S2

Source: adapted from Frankish and Evans (2009:15)

SYSTEM 1	SYSTEM 2
Evolutionarily old	Evolutionarily recent
Unconscious, preconscious	Conscious
Implicit knowledge	Explicit knowledge
Automatic	Controlled
Fast	Slow
Parallel	Sequential
High capacity	Low capacity
Intuitive	Reflective
Associative	Rule-based

Obviously there are considerable parallels between, on the one hand, S1 information processing and the peripheral persuasive route of the ELM (as a very direct and spontaneous information processing route), and on the other hand between S2 information processing and the central persuasive route of the ELM (as a more elaborated information processing route). This means that cue management must be targeted at the S1 system, tapping into this evolutionarily old system of meaning and decision making. It is precisely one of the great merits of evolutionary psychologists that these researchers pay special attention to this evolutionarily old information processing system. Central to the field of evolutionary psychology (EP) are the concepts of “mental organs” and “fitness cues” activating those organs. Together these concepts can make up an EP framework for cue management purposes.

4. EVOLUTIONARY PSYCHOLOGY AS A FRAMEWORK FOR CUE MANAGEMENT

EP is the study of the functioning of the mind (or, if you wish, of human nature) in light of the process of evolution by natural selection. As Buss (1999:47) remarks:

If humans have a nature and evolution by selection is the causal process that produced that nature, then the next question is what great insights into human nature can be provided by examining our evolutionary origins.

Darwinian theory states that the core of all animal natures, including humans', consists of a large collection of adaptations. EP tends to focus on one special subclass of the adaptations that comprise human nature – psychological adaptations. Similarly to how evolutionary biology distinguishes within the very complex human body several organs or organic parts that have clear and specific adaptive functions, so does EP try to draw up a map of the extremely complex human mind, by distinguishing different evolved psychological adaptations that constitute it. Metaphorically, these evolved adaptive psychological mechanisms are often called “mental organs.” EP then attempts to analyze the human mind as a collection of mental organs. It studies the contexts that activate these mental organs, and it deals with the behaviors generated by those mechanisms.

According to Buss (1999:47-51), a mental organ consists of a set of processes inside a living organism, with the following properties:

- An evolved psychological mechanism exists in the form that it does because it solved a specific problem of survival or reproduction recurrently over evolutionary history. (...)

- An evolved psychological mechanism is designed to take in only a narrow slice of information. (...)
- The input of an evolved psychological mechanism tells an organism the particular adaptive problem it is facing. (...)
- The input of an evolved psychological mechanism is transformed through decision rules into output. (...)
- The output of an evolved psychological mechanism can be physiological activity, information to other psychological mechanisms, or manifest behavior. (...)
- The output of an evolved psychological mechanism is directed toward the solution to a specific adaptive problem.

According to Buss, EP mechanisms almost invariably do their job out of consciousness, which reminds us of the characteristics of S1. But especially important here is the second characteristic mentioned by Buss. It means that we can now understand the cue concept in terms of the narrow slices of information activating mental organs by telling an organism the particular adaptive problem it is facing. Recently, in his evolutionary perspective on consumer behavior, Miller (2009) has introduced the concept of “fitness cues” to highlight the fitness relevance of those cues. I will quote him here at length (Miller 2009:55-56):

Fitness cues (...) are features of an individual’s environment that convey useful information about local fitness opportunities – ways to increase one’s survival chances or reproductive success. Darkness is a cue for danger (reduced survival chances), so it induces fear and shelter seeking. For predators, the scent of prey is a cue for food (increased survival chances), so it motivates pursuit, attack, and ingestion. For males, the cues that identify

fertile females of their own species carry information about mating opportunities (increased reproductive success), so they motivate pursuit, courtship, and copulation. Our perceptual systems have evolved to pay the most attention to these sorts of fitness cues, because, in evolutionary terms, they are the only things worth noticing about one's world. (Natural selection cannot favor animals' responding to any cues that do not identify an opportunity to promote their survival and reproduction.) Further, animals evolve motivation systems to surround themselves with positive, fitness-promoting cues (which evolve to "feel good"), and to avoid negative, fitness-threatening cues (which evolve to "feel bad"). At the evolutionary level, animals are always under selection to survive and reproduce. But at the subjective level, they are always motivated to chase the fitness cues that feel good – not because they consciously understand that natural pleasures are associated with evolutionary success, but because they have been shaped to act as if they understood that association unconsciously.

According to Miller, we therefore all have a deep and abiding interest in pursuing fitness cues that were associated with better survival, social, sexual, and parental prospects in prehistory. In my opinion, and following Miller, advertising cues can therefore be understood as fitness cues, that is, as those small pieces of advertising information that – within the peripheral persuasive route of the ELM – draw the attention of the consumer and are quickly and unconsciously judged to be either relevant or attractive from a fitness-promoting perspective. An affective reaction – enhancing ad-likeability, and therefore advertising effectiveness – is the corresponding result. It is precisely because a cue is fitness promoting that (a) it is worthy of our attention, (b) it is (generally unconsciously)

judged to be relevant and/or attractive, and (c) it “works” by eliciting affective or emotional reactions (we feel good or we feel bad). Therefore, Miller’s concept of fitness cues seems to correspond exactly to the functioning of cues in peripheral persuasion.

If one rereads the EP literature from this fitness cue perspective, it becomes evident that specific fitness cues seem to activate the evolved mental organs. Thus, food choice modules are activated by cues of high caloric value such as a sweet or fatty taste. Kin investment is guided by cues of genetic relatedness, such as facial similarities or the fact that one is raised together with others by the same parents. Parental investment is activated by cues such as a crying baby. Reciprocal altruism is guided by reputational cues such as helping people in need or cheater-detecting cues such as speech errors, hesitations, shorter speaking turns, raised vocal pitch, or self-touching behavior. Mate choice is guided by a plethora of cues defining male and female attractiveness or charm (to which we will return within our research project).

These few examples also make it clear that the idea of “fitness-promoting cues” has to be understood in an evolutionary context, that is, as cues that promoted fitness in the Environment of Evolutionary Adaptedness (EEA). Indeed, evolutionary science has made it clear that different environments pose different adaptive problems and so require different adaptations. To understand any particular adaptation, one therefore must know something about the environment in which it evolved. Our EEA has to be situated in the East African savannas, where we lived from about six million years ago (after the human lineage split from that of the chimpanzee) until about 100,000 years ago. Around 100,000 years ago, some of our ancestors began to emigrate out of Africa, and eventually colonized the whole world. But 100,000 years is only about 5,000 generations – too short a time for evolution to

produce any major changes. This means that we are all “stone agers living in the fast lane” (Evans & Zarate 1999:45-46). We all have a Stone Age mind adapted to living in the EEA. Again, the parallel with S1 as an evolutionarily old system is striking.

The result is that many forms of current consumption behavior (and many forms of behavior in general) – which were quite adaptive in the EEA – now have simply become maladaptive and even sometimes just plain hazardous. An illustrative case can be found in our food preferences for sweet and fatty foods. What was adaptive in the EEA (where those food resources were scarce) has become maladaptive in today’s modern society (where those food resources are abundant). The case illustrates that even when we know that fat and sugar are unhealthy for us, we cannot help responding to the corresponding cues. Indeed, fitness cues work through *primary affective reactions* without much rational cognition involved. Again, the parallels with our earlier description of S1 information processing and decision making – and therefore with the peripheral ELM route – are obvious.

In line with EP principles, one can then think of concrete adaptive problems our ancestors faced recurrently, work out the mental organs that evolved to solve those problems, and then start mapping the specific fitness cues that activate those mental organs. These fitness cues can then function as concrete cues in ads, eliciting affective reactions through a process of S1 information processing and decision making, that is, a process of unconscious, fast, intuitive, automatic evaluation of the relevance and/or attractiveness of those cues. It is in this sense that EP can provide both academics and practitioners with a concrete framework for studying and using cues in the context of cue management as a

specific form of advertising management. In the final section of this paper, I will test this EP perspective on cue management in a large scale experiment.

5. EXPLORING THE IMPACT OF FITNESS CUES ON AD-LIKEABILITY

In this last section, I demonstrate the fruitfulness of the EP perspective for cue management through a research project investigating the impact of fitness cues on advertising likeability. Of course, one cannot investigate all fitness cues in any single project, so I have focused on one of the most investigated of the evolved mental organs, namely the mating module. Among the fitness cues that activate these mental organs are the cues that define sexual attractiveness.

Cues of Sexual Attractiveness

Human sexual bonding is indeed one of the key research areas of EP. Since perhaps no other aspect of human behavior has such profound implications on gene replication into the next generation, the extensive interest of EP in this particular aspect of the human mind should be of no surprise. Moreover, it is here (more than with any other aspect of human behavior) that the major differences in male and female thinking and feeling are to be found since, indeed, the recurrent problems our ancestors faced in finding a suitable mate were quite different for the two sexes.

The most influential theoretical model that has been proposed to explain sexual differences in mating behavior is the parental investment model (Trivers 1972). This model states that,

within sexually reproducing species, the sex that provides the greater parental investment will be the more sexually choosy and restrained one. Whenever the two sexes within a species provide a differential amount of parental investment in offspring, this should translate into differences in mating behavior including the mating characteristics – or fitness cues – sought in ideal suitors, and the proclivity to engage in short-term versus long-term mating. For *Homo sapiens*, because females provide exceptionally higher parental investment (although we are a species with considerable paternal parental investment), this yields a wide range of psychosexual behaviors that are sex-specific (Saad 2007:61).

What, then, are the cues that make up male and female charm? Although there is much dispute about the precise meaning of some of these cues, there is also substantial agreement that some key features are central to male and female charm. I will limit myself here to some visual cues that are supported by robust empirical findings.

General Cues of Sexual Charm

One set of cues that both men and women share in common are those that signal “good genes.” Since DNA testing kits were unavailable in the Pleistocene, both men and women tended to rely on cues of good health as indicators of good genes. Relevant cues then include a smooth skin, white teeth, lustrous and shiny hair, clear eyes, and a healthy skin color (not pale or grey, but displaying a healthy blush). Not all cues are that obvious, however, if you don’t investigate their meaning from an EP perspective. Symmetry of the face and the body, for instance, functions as a cue of attractiveness, since it is an indication of health. Indeed, this kind of symmetry correlates with a normal genetic development as

well as with a sound immune system, since many disfiguring diseases yield facial or bodily asymmetry.

Since health as an indicator of good genes was important for both sexes, these cues are part of both male *and* female sexual attractiveness. Also, psychological cues such as kindness or general intelligence offered clear adaptive advantages for both sexes, and thus have become part of the sexually attractive make-up of *both* males and females. Yet in many aspects, male and female sexual charms are distinct. As Saad neatly summarizes (2007:63):

Two universal and robust findings are that men place a greater premium on youth and beauty whereas women place greater importance on social status and ability to acquire, retain, and share resources. The reason for this pervasive sex difference is that mating preferences cater to sex-specific evolutionary problems.

Cues Central to Male Charm

The main aspect in which male charm differs from female charm is through cues to available or potentially available resources. As Bridgeman (2003:99-103) points out, given the harsh circumstances in which women had to raise their offspring in the EEA, this resource aspect of male charm should not surprise us. Indeed, choosing males based on their ability to acquire, protect, and share resources – and therefore on their status position – is a ubiquitous female mating strategy across a diverse range of species. Also note that, since it takes time for a man to acquire status and (corresponding) resources, this is one reason why women tend to prefer slightly older males, other things being equal. Bridgeman (2003:99) also notes that it is not only social standing that defines the male charm in this

respect. Demonstrating skill in hunting (sometimes formalized in games, sports, or rituals) is also important. Together with the protection that a male can offer a female and her offspring (against predators or assaults), this explains why cues to physical strength have also become crucial elements of male charm. Finally, this resource aspect also explains why other valued traits in males are characteristics such as romantic dedication, loyalty, and child-friendliness.

Cues Central to Female Charm

The male is also making a difficult decision in estimating the reproductive capacity of his potential wife for the next two decades, but again nature provides *cues* that help to inform his decision, as Bridgeman (2003:104) points out. One set of cues is those that constitute female physical beauty. Indeed, EP has found that what men find attractive in the appearance of women is a series of cues that enable them to assess a woman's reproductive potential. Therefore, cues such as youth and health are highly valued by males in females.

Again, not all cues are that obvious unless they are investigated from an EP perspective. A waist-to-hip ratio (WHR) of about 0.70, for instance, can only be understood as a cue defining the female charm if one knows that women with a WHR near the optimum of about 0.70 are more likely to be highly fertile than women with much larger or smaller ratios (i.e., the obese, the pathologically thin, and the sexually immature).

Yet there is also a remarkably dubious aspect to what makes females attractive to males. This is sometimes referred to as the Madonna/Whore dichotomy. On the one hand, in many cultures, males tend to be attracted to virginity as an indication of chastity. Its appeal rests

in being an extreme cue of sexual faithfulness. The problem males faced in the EEA (where no paternity testing kits were available), was that they risked – in the light of a sexually unfaithful partner –investing their resources in offspring that were not theirs. Therefore, on the one hand, men tend to attach high value to chastity, adopting a Madonna archetype as a standard for the ideal (long-term) partner. On the other hand, men have to invest only very limited resources – and therefore run very little risk – in short-term mating occasions (think of the typical one-night stand). The risks women run on such occasions are much greater (or at least they were in the Pleistocene, given that these short sexual encounters could well end up in pregnancy). Males therefore tend to have a less restrictive attitude toward these forms of short-term sexual mating (at least for themselves). This can sometimes lead them to adopt a Whore archetype as a standard for the ideal (short-term) sexual partner, as reflected in the consumption of pornography, or in the interest men show in cues of female sexual willingness and/or sexual arousal.

Manipulating Ads

In my experiment, I investigated most of these cues that make up male and female charm to learn what effect these cues have in an advertising context. Some authors (for an in-depth discussion, see Saad 2004, and especially Saad 2007:123-162) have already shown that many of these cues frequently and universally appear in ads, suggesting that advertising strategists and creative directors use their intuitive knowledge of these cues to enhance advertising effectiveness. With my experiment, I wanted to discover whether the cues I've discussed did indeed have a real and measurable impact on advertising effectiveness.

I created a total of 80 sets of ads consisting of one neutral version and one manipulated version – that is, an ad version in which cues consisting of male or female charm were either inserted or enhanced – containing the following EP fitness cues for sexual attractiveness:

- Cues that are part of both male and female charm: cues of good health and kindness (19 ad sets)
- Cues of male attractiveness: cues of available resources/material wealth/high status; cues of physical strength; cues of a slightly older age; and cues of romantic dedication and child-friendliness (14 sets)
- Cues of female attractiveness: cues of reproductive potential, such as youthfulness or specific fertility cues such as a 0.70 WHR or large breasts; cues of sexual willingness and/or sexual arousal (31 sets: it was easier to manipulate ads featuring female models, since the female charm is more visually defined than the male charm)
- Combinations of several cues: to learn whether these combinations result in much higher effectiveness scores than single cues (eight sets). I hypothesized that perhaps a single cue manipulation (e.g., enlarging the female ad model's breasts) would have little impact, or at least that combinations of cues (e.g., enlarging the female model's breasts, but also giving her a 0.70 WHR, making her hair more shiny and lustrous, whitening her teeth, and giving her a healthy blush) would have a higher impact on advertising effectiveness measures
- “Reversed” cues (cues of male sexual attractiveness enhanced in female models and vice versa) (four sets). Since we were interested in checking the sex-specificity of certain cues, we also created these “sex-reversed” ad sets. For instance, I not only

created ad sets in which the male model showed enhanced cues of physical strength, but also ad sets in which the female model showed these same typically male cues. Or, in other words, I not only manipulated a female model's WHR to reflect the 'ideal' WHR of 0.70, but also created ad sets in which we gave the male model a WHR approaching the 0.70 level. Figures 5 and 6 illustrate a straight and a reversed cue manipulation.



*Figure 5: WHR approaching the 0.70 level
in the left (manipulated) version of the ad*



*Figure 6: “Reversed cue” (WHR approaching 0.70 level)
in the right (manipulated) version of the ad*

- Finally, there were four sets with no or neutral manipulations (as a reliability check). Two ad sets showed exactly the same ad on both the left and the right side of the screen. This way I was able to check whether indeed these ad sets yielded 50% of respondents choosing the left ad version and 50% choosing the right ad version, as expected by chance. The neutral manipulations were black versus brown hair of the ad model, and green versus blue eyes of the ad model. Since these manipulations don't deal with fitness cues, they are expected to have no impact on the ad effectiveness measure.

Most cue manipulations were created using Photoshop CS3. This sophisticated picture manipulation software enabled me to slightly whiten the teeth, enlarge the breasts by a few inches, make the skin look a little paler or the lips a little more reddish, place greater emphasis on the male model's abdominal muscles, etc. All ad sets can be viewed and downloaded from the website of C.R.E.A.T.I.V.E. (Centre for Research on the Effectiveness of Advertising Techniques, Innovations, Values and Emotions – a research center based at Ghent University, Belgium): <http://www.ugentcreative.eu/>.

The Experiment

All 80 ad sets were integrated into a self-running PowerPoint presentation and copied onto a CD-ROM. Two versions of the presentation were made: one AB-version and a mirrored

BA-version. Half of the respondents got the AB-version, the other half got the mirrored BA-version. This means that if in an ad set the manipulated version was displayed on the right side of the computer screen for half of the respondents, it was displayed on the left side of the computer screen for the other half of the respondents. This procedure enabled me to avoid order effects due to respondents systematically picking the left or the right ad version as the most appealing one because they don't notice any difference at a conscious level. The two ad sets with no manipulations enabled me to check whether indeed I had succeeded in avoiding this order effect. During the self-running presentation, each ad set – consisting of a neutral and a manipulated version of the same ad – was shown for only three seconds, thus enabling an average (maximum) exposure time of 1.5 seconds per ad, which resembles the time an average consumer pays to an average print ad. All participants viewed all 80 ad sets.

Three-hundred and seventy respondents took part in the experiment: 185 males and 184 females (one missing value), aged between 14 and 71 years old, with an average age of 35.63 years. All respondents received the self-running PowerPoint on CD-ROM (containing all 80 ad sets) so that they could view the slideshow in the privacy of their own home in the absence of the researcher. For each viewed ad set, each respondent indicated which version (left or right) they considered the most appealing. Even if they did not notice a difference between the two versions of the same ad, they still had to indicate on their answer form – within the five seconds that the computer screen turned black in-between two ad sets – either the left or the right version of the ad as the most appealing. This “forced choice ad preference” measure was used to find out if the inserted or enhanced cues in the manipulated ad version had an impact on the likeability of the ad. Ad-likeability is considered by several authors as a valid – some say even the most valid single – predictor

of advertising effectiveness. Indeed, authors such as Biel (1990), Haley and Baldinger (1991), and Dröge (1989) argue that ad-likeability highly correlates with brand preference, and that attitudes toward the ad affect attitudes toward the brand, especially in non-elaborate situations – which is exactly what I am investigating: the processing of cues in the peripheral ELM route (for a meta-analysis, see Brown & Stayman 1992). Brown (1991) also suggests that ad-likeability has a long-term effect. Furthermore, from the perspective of cue management, ad-likeability is the most direct measure of the impact that a specific cue has in terms of advertising effectiveness. Indeed, as I have pointed out, the management of advertising cues aims at creating primary affective reactions that impact brand-likeability through a positive ad-likeability.

Generally, ad-likeability is measured on a scale ranging from 0 to 10 or from “very much dislike” to “very much like.” However, I opted for “forced choice ad preference” as a measure of ad-likeability, since my pre-testing of the material revealed that often respondents did not consciously perceive any difference between two ads in an ad set. Indeed, most manipulations were very subtle and would probably not be captured by more traditional ad-likeability measures. That these manipulations nevertheless had a clear impact on ad-likeability will, however, soon be revealed by the obtained findings. One might argue that scaled ad-likeability measures seem to correspond more with S2 processing (since they are based on a more conscious, time-consuming, reasoned deliberation), while our forced choice preference measure allowed us to also detect S1 differences in ad-likeability (since it is based on fast, intuitive, and often unconscious feelings). As Vakratsas and Ambler (1999:32) point out: “The absence of cognition suggested by pure affect models is difficult to show, because cognition usually intervenes in measurement. Asking about feelings brings cognitive processes into play and induces

cognitive bias.” It is exactly this cognitive bias that I sought to avoid with my “forced choice ad preference” measurement method, since it is S1 processing that cue management researchers are interested in.

Results

Tables 2 to 7 show the results of the experiment. Each table has the same structure:

- The first column provides the ad set number. Notice that 140 ad sets were part of the PowerPoint presentation, although I created only 80 ad sets specifically for this study. Indeed, I used this experiment to simultaneously explore some other topics of interest (e.g., the impact of direct versus indirect gaze of the model, MEC manipulations of slogans, inserting subliminal stimuli in ads, etc.), the results of which will be published elsewhere. Using multiple manipulations made it more difficult for the respondent to consciously “detect” the specific EP fitness cue manipulations during the three-second exposure to each ad set.
- In the second column, I describe the specific cue manipulation.
- The third column shows which percentage of the total population preferred the manipulated ad version, that is, the version with the enhanced or inserted fitness cues. Percentages above 50% indicate that the cue was effective in raising the ad-likeability (since this means that more than 50% of the respondents preferred the ad with the enhanced or inserted EP cue to the ad without the EP fitness cue).
- In the fourth column, I indicate by Yes or No whether the deviation from the normally expected 50/50% ratio (of respondents choosing either the neutral or the

manipulated version) as reported in the third column is statistically significant as calculated by a percentage test.

- In the fifth and sixth columns, I report the percentages of males and females choosing the manipulated version as the most appealing one.
- In the seventh and last column, I report the significance level (one-sided Fisher exact test) of these male/female differences.

In all tables, I have marked in grey the results that do not agree with the EP perspective. Notice that, in general, one should not expect sex differences to occur, since an attractive same-sex model is preferred as a model you want to identify with, and an attractive opposite-sex model is preferred as a model you want to be looking at. However, in my comments I will go into greater detail wherever sex differences (cues that work for one sex, but not for the other sex) occur.

The results for the ad sets with no or neutral cue manipulations are shown in Table 2. Indeed, as a check on the reliability of the experimental design (to find out if I had succeeded in avoiding order effects, cf. supra) I included two ad sets with no manipulations at all. In both cases there were no significant deviations from the expected percentages (that is, 50% respondents opted for the left version of the ad, and 50% opted for the right version). We also added two meaningless manipulations, in the sense that no EP theory or research has yet revealed that the cues of brown versus black hair or green versus blue eyes are meaningful fitness cues. As Miller (2009:56) points out, only fitness-related cues can succeed in drawing our attention and eliciting affective reactions: “Natural selection cannot favor animals’ responding to any cues that do not identify an opportunity to promote their

survival and reproduction.” Our findings confirm Miller’s point. No significant preferences for either cue were found.

Table 2: Ad preferences regarding neutral manipulations or no manipulations at all

AD SET No.	MANIPULATION: WHICH FITNESS CUES ARE ENHANCED?	PERCENTAGES OF RESPONDENTS PREFERRING THE AD WITH THE ENHANCED FITNESS CUES				
		Total	Sign.	Male	Female	Sign.
44	No manipulation at all	49.7	No	51.1	48.6	0.34
67	No manipulation at all	48.9	No	51.9	46.2	0.16
15	Brown versus black hair (as a neutral manipulation)	51.6	No	48.1	55.4	0.10
51	Green versus blue eyes (as a neutral manipulation)	46.6	No	47.3	46.2	0.46

The results for the cues of general sexual attractiveness are summarized in Table 3. Notice that all fitness cues succeeded in substantially enhancing the ad preference scores, sometimes yielding more than 90% of the respondents opting for the manipulated ad. For some ad sets, sex differences did occur, but in all cases (except ad set 05) this only points towards an occasionally increased sensitivity to these general cues of sexual attractiveness when the advertised model is of the opposite sex. However, in most cases this cue sensitivity is equally high for both sexes and independent of the sex of the advertised model. Most importantly, however, no cues were found to have a positive impact on the ad-likeability scores of one sex, yet a negative impact on the scores of the other sex. This means that all results were in line with the EP framework.

Table 3: Ad preferences regarding non-sex-specific cues of sexual attractiveness

AD SET NR.	MANIPULATION: WHICH FITNESS CUES ARE ENHANCED?	PERCENTAGES OF RESPONDENTS PREFERRING THE AD WITH THE ENHANCED FITNESS CUES				
		Total	Sign.	Male	Female	Sign.
GOOD HEALTH OF THE MALE MODEL						
03	Clear skin/bags under the eyes removed	71.7	Yes	66.8	77.0	0.02
06	Slightly whitened teeth	64.8	Yes	60.3	69.0	0.05
20	Lower belly fat	63.7	Yes	64.3	62.8	0.43
28	Bags under the eyes removed/brighter eyes: fresh (versus tired)	62.7	Yes	57.8	67.4	0.04
124	Low BMI model (versus overweight model)	96.2	Yes	94.6	97.8	0.08
GOOD HEALTH OF THE FEMALE MODEL						
05	Bags under the eyes removed/brighter eyes: fresh (versus tired)	75.4	Yes	69.2	81.5	0.00
07	Low (versus higher) BMI	92.4	Yes	91.8	92.9	0.42
11	Healthy tanned (versus pale) skin color	87.8	Yes	89.2	86.4	0.26
17	Healthy blush, red lips – no seductive pose	57.6	Yes	54.6	60.3	0.16
38	Bags under the eyes removed/brighter eyes: fresh (versus tired)	54.3	Yes	55.1	53.8	0.44
47	Facial symmetry (versus asymmetry)	63.5	Yes	61.1	65.8	0.21
55	Clear skin (versus birth marks)	75.7	Yes	74.6	76.6	0.37
58	Healthy tanned (versus pale) skin color	79.4	Yes	78.9	79.8	0.47
65	Brighter eyes through darker iris	65.7	Yes	65.9	65.6	0.51
78	Smooth skin (versus slightly pockmarked skin)	80.0	Yes	78.4	81.5	0.27
79	Slightly whitened teeth	57.2	Yes	57.3	57.1	0.52
118	Long lustrous hair	67.8	Yes	66.5	69.0	0.34

131	Clear skin (versus tainted skin)	57.0	Yes	64.3	50.0	0.00
KINDNESS						
77	Smiling face (versus serious face) of the female model	85.1	Yes	83.8	86.4	0.29

The results for the sex-specific cues of male sexual attractiveness are summarized in Table 4. Again, all fitness cues – except the cues for an older age – succeeded in augmenting the ad preference scores well above the expected 50% chance level. The cues for “a slightly older age” (a slight graying of the hair, and a beard, as cues of sexual maturity) are of course debatable. Moreover, what comprises “a slightly older age” is of course wholly dependent on the age of the (female) respondents. In general, no sex differences were found, as men want to identify with attractive male models, and women prefer to look at attractive male models. In some ad sets, however, male attractiveness had more effect on female ad-likeability than on male ad-likeability. As with the results of Table 3, this probably indicates an occasional higher sensitivity to cues of sexual attractiveness when the advertised model belongs to the opposite sex. Yet in one ad set it was the other way around, namely ad set 127, featuring Brad Pitt. The manipulated ad with an expensive watch as a social status cue appealed more strongly to the males than to the females (although it must be stressed that both sexes preferred the manipulated ad version containing the fitness cue). Perhaps Brad Pitt’s very attractive face drew too much attention from the female respondents, making them focus less on the social status cue, leading in turn to lower preference scores? Remember that the ads were only shown for three seconds. Of course, since I didn’t go into that much detail with my respondents, the true nature of these sex differences is hard to explain, and much more research is needed here. Different aspects of the ad – sometimes perhaps even small details – may also be responsible for some of these sex differences or for making some cues more or less effective than others.

Consider, for instance, ad set 128 showing a young male in front of a sporty vehicle. In the manipulated ad version he is wearing a suit (as a cue of higher social status); in the neutral version he is wearing very casual clothing. Female respondents go for the cues of high status, with 75% choosing the manipulated ad as the most appealing one. Males also go for the suit ad, but 42.2% nevertheless found the ad with the casual clothing the most appealing one. Perhaps the male respondents (with males being more involved with cars as a product category) focused more on the sporty yet rather cheap nature of the vehicle and therefore chose the neutral ad with the casual – and therefore sporty and cheaper – clothing style of the owner. Perhaps they judged this ad to have higher internal consistency and therefore picked the neutral version as the “better” one. The important thing is, however, that in both ad set 127 and ad set 128 *both* sexes showed a preference for the manipulated ad version containing the (enhanced or inserted) fitness cues of male social status. This means my research findings were completely in line with the EP perspective. This even holds for the considerable sex differences regarding the cues of romantic dedication and child-friendliness, which – in line with EP predictions – are especially appealing to the female respondents.

Table 4: Ad preferences regarding cues of male sexual attractiveness

AD SET NR.	MANIPULATION: WHICH FITNESS CUES ARE ENHANCED?	PERCENTAGES OF RESPONDENTS PREFERRING THE AD WITH THE ENHANCED FITNESS CUES				
		Total	Sign.	Male	Female	Sign.
AVAILABLE RESOURCES / MATERIAL WEALTH / HIGH STATUS						
10	High status (versus casual) clothing (on beach)	56.4	Yes	51.4	61.2	0.04
114	High status (versus casual) clothing (same ad without background)	66.8	Yes	64.9	68.5	0.27
127	High status attribute (watch)	71.1	Yes	75.1	66.8	0.05

128	High status (versus casual) clothing	66.5	Yes	57.8	75.0	0.00
PHYSICAL STRENGTH						
24	Masculized face (pronounced chin and cheeks, heavier eyebrows)	64.9	Yes	67.7	62.5	0.18
40	Longer, taller body	58.4	Yes	57.4	59.8	0.36
91	Pronounced muscles on torso (biceps, six pack)	60.4	Yes	61.4	59.2	0.38
99	Longer, taller body	63.0	Yes	63.8	62.0	0.40
140	Pronounced muscles on torso (biceps, six pack)	83.5	Yes	82.2	84.8	0.30
SLIGHTLY OLDER AGE / MATURITY						
16	Young to middle-aged model, but with slightly gray hair	34.6	Yes	32.4	37.0	0.22
80	Young to middle-aged model, with beard (versus no beard)	28.0	Yes	30.3	25.8	0.20
ROMANTIC DEDICATION						
112	Female model with (versus without) dedicated partner	71.4	Yes	57.3	85.3	0.00
134	Dedicated, romantic couple (versus couple just walking together)	64.8	Yes	58.4	71.0	0.01
CHILD-FRIENDLINESS						
113	Male model taking care of baby (versus returning from fishing)	58.9	Yes	49.2	68.5	0.00

The results for the sex-specific cues of female sexual attractiveness are summarized in Table 5. In general, these fitness cues succeeded in substantially raising the preferred ad score above the 50% chance level. However, notable exceptions are the ad sets including what I have called “neonatal” cues (smaller nose and enlarged eyes). In ad sets 46 and 76 these cues had no effect, while in set 86 the enlarged eyes even lowered the expected ad preference score below the 50% level. It is unclear to me what the explanation for these

anomalies might be, just as it is often unclear why sometimes certain cues do appeal more to one sex or the other, or even don't appeal more to one sex or the other (as with ad set 25 where I had expected a more pronounced male preference for these cues). Further research is needed, but these anomalies clearly demonstrate that cues should not be understood as simple stimuli that automatically yield consistently high impact scores in any context and in an equal matter for both sexes. Cues can be more or less pronounced, cues always work within a context, and perhaps cues can be better understood in a semiotic (that is, meaning making) perspective than when one looks at cues merely from an information processing perspective. The "buy button" idea that one often comes across in reading popular literature on neuro-marketing is surely not supported by my findings, although these findings are strongly in line with EP predictions.

However, some significant differences that arose between the male and female respondents make sense from an EP perspective, for instance, the male/female differences that arise in their reactions towards certain cues to fertility (such as large breasts) and especially towards cues of sexual willingness and arousal (such as full and swollen red lips, extremely low-necked dresses, etc.). While these cues often increased the male ad preference scores far above the 50% level, they lowered the female ad preference scores below that level with equal frequency. In order to understand these results, I can refer to the Madonna/Whore dichotomy (cf. supra). This is reflected here in the likeability scores toward ads featuring female models showing "whorish" cues of (short-term) sexual willingness: appealing to men, but not making women want to identify themselves with these models. Therefore, although these cues seem to work differently for male and female respondents, I must stress that these results are nevertheless completely in line with the EP perspective. The same can be said regarding ad set 88 (including the child-friendliness cues of parental investment),

where this time the inserted cues have a highly positive impact on the female likeability score, yet no (or even slightly negative) impact on the male scores.

Table 5: Preferences regarding cues of female sexual attractiveness

AD SET NR.	MANIPULATION: WHICH FITNESS CUES ARE ENHANCED?	PERCENTAGES OF RESPONDENTS PREFERRING THE AD WITH THE ENHANCED FITNESS CUES				
		Total	Sign.	Male	Female	Sign.
REPRODUCTIVE POTENTIAL: YOUTH						
09	Blond (versus brown) hair as a juvenile trait	56.5	Yes	58.9	54.4	0.22
31	Full black (versus slightly gray) hair	61.4	Yes	62.2	60.3	0.40
36	Neonatal traits – rounder cheek bones	55.3	Yes	54.6	56.3	0.41
42	Smaller buttocks	58.4	Yes	50.8	65.8	0.00
46	Neonatal traits – enlarged eyes	52.8	No	50.5	54.9	0.23
50	Smaller buttocks	64.6	Yes	60	69	0.04
53	Blond (versus brown) hair and light (versus dark) eyes	55.3	Yes	52.4	57.9	0.17
62	Smooth skin (versus wrinkles and crow's feet)	89.2	Yes	88.1	90.2	0.32
63	Smooth skin (versus slight wrinkles) and whiter teeth	64.0	Yes	63.8	64.1	0.52
72	Longer legs (as a juvenile trait)	61.8	Yes	60.9	63.0	0.37
73	Blond (versus brown) hair as a juvenile trait	65.9	Yes	63.0	68.5	0.16
76	Neonatal traits – small nose	50.7	No	50.0	51.6	0.42
86	Neonatal traits – enlarged eyes	43.2	Yes	47.6	39.1	0.06
REPRODUCTIVE POTENTIAL: FERTILITY						
21	Reduced WHR (0.70), large breasts	67.1	Yes	66.7	67.4	0.49
29	Large breasts	74.1	Yes	78.4	69.6	0.04

33	Feminized face (nose, chin, cheek bones, eyebrows)	76.2	Yes	70.3	82.1	0.01
35	Large breasts	55.9	Yes	65.4	46.2	0.00
57	Reduced WHR of 0.70	57.5	Yes	62.7	51.9	0.02
82	Feminized face (nose, chin, cheek bones, eyebrows)	62.4	Yes	62.7	62.0	0.48
95	Reduced WHR of 0.70	57.6	Yes	52.4	62.5	0.03
101	Reduced WHR of 0.70	70.7	Yes	70.8	70.5	0.52
104	Large breasts	66.2	Yes	66.5	65.8	0.49
SEXUAL WILLINGNESS AND/OR AROUSAL						
25	Blush, red lips, a come-hither smile	75.5	Yes	75.1	75.8	0.49
41	Blush, red lips, seductive pose	55.4	Yes	51.9	59.2	0.09
56	Full and swollen lips	54.9	Yes	60.0	49.5	0.03
60	Extremely low-necked dress	57.3	Yes	73.0	41.3	0.00
64	Full red lips	45.1	Yes	53.5	37.0	0.00
68	Extremely low-necked dress	64.1	Yes	69.2	58.7	0.02
129	Full red lips	52.4	No	56.2	48.9	0.10
132	Full blush, seductive pose	46.2	Yes	43.5	49.2	0.16
CHILD-FRIENDLINESS						
88	Parental care	57.9	Yes	48.1	67.6	0.00

The results for the ad sets in which combinations of cues to different dimensions of sexual attractiveness are inserted or enhanced, are summarized in Table 6. Notice that combinations of several cues do not necessarily lead to much higher ad preference scores than those obtained in the ad sets where a single cue was manipulated. On the contrary,

some combinations seem to reduce the scores below the 50% level, as in ad set 125 where the cue manipulation is so pronounced that it is no longer realistic and it becomes obvious that the picture has been “photoshopped” by the advertising boys. Moreover, this likeability lowering seems to be especially the case when cues of sexual willingness or arousal are involved (as it is also the case in ad set 125), although, again (cf. ad set 94), males and females may diverge in their appreciation of those cues. Once more I will refer to the Madonna/Whore dichotomy. The combination of several cues makes the manipulation all the more pronounced and therefore noticeable. And as every woman knows, there is a fine line between make-up and clothing that makes you look sexier, and make-up and clothing that makes you look whorish. I would guess that in those cases where ad-likeability scores drop below the 50% level (for females or even for both sexes), the whorish impression prevails. This would mean that, although I’ve marked these scores in grey – thus indicating that they are contradicting EP predictions – these results are actually in line with the EP framework. Again, much more research is needed in order to fine-tune these aspects of cue management.

Table 6: The impact of combined cues

AD SET NR.	MANIPULATION: WHICH FITNESS CUES ARE ENHANCED?	PERCENTAGES OF RESPONDENTS PREFERRING THE AD WITH THE ENHANCED FITNESS CUES				
		Total	Sign.	Male	Female	Sign.
71	Female model with clear skin, whitened teeth, enlarged pupils, healthy blush, glossy lips, more symmetrical face	66.4	Yes	64.9	67.8	0.32
94	Female model with extremely low-necked dress, blush, red lips	56.8	Yes	74.1	39.7	0.00
98	Female model with glossy lips, enlarged pupils, blush	47.2	No	48.6	45.9	0.34
106	Male model with fewer wrinkles, lighter hair, brighter eyes, red and	78.1	Yes	73.5	82.6	0.02

	fuller lips					
108	Male model with fewer wrinkles, clearer skin, more symmetrical face, brighter eyes	55.7	Yes	54.1	57.6	0.28
110	Female model with lighter hair, fewer wrinkles, healthy blush, red and fuller lips	74.3	Yes	72.0	76.5	0.19
119	Female model with clearer skin, brighter eyes, glossy lips and more symmetrical face	78.6	Yes	76.8	80.4	0.23
125	Female model with large breasts, reduced 0.70 WHR, blush, red lips	38.2	Yes	46.5	30.1	0.00

Finally, the results for the “reversed” cues are summarized in Table 7. These results confirm the often sex-specific nature of certain fitness cues as predicted by EP. For instance, adding male fitness cues of physical strength to a female model has devastating effects on the ad-likeability, as shown by the corresponding ad preference scores. However, one (ad set 87) remains puzzling: why do high-status cues such as jewelry substantially enhance female sexual attractiveness for both male and female respondents? More research is needed, although one might point here again to the higher internal consistency of the ad showing the model wearing jewelry, since her dress and looks also seem to position her as belonging to the upper social classes. If this is the case, it means that the higher likeability score is not so much related to the cue as such, but to the ad being more internally consistent and therefore “better made” (cf. our interpretation of ad set 128 in Table 4).

Table 7: The impact of “reversed” cues

AD SET NR.	MANIPULATION: WHICH FITNESS CUES ARE ENHANCED?	PERCENTAGES OF RESPONDENTS PREFERRING THE AD WITH THE ENHANCED FITNESS CUES				
		Total	Sign.	Male	Female	Sign.
18	Female model with enhanced arm muscles and breasts reduced	39.8	Yes	45.1	34.2	0.02

87	Female model showing high-status cues (jewelry)	67.3	Yes	64.3	70.7	0.12
97	Female model with enhanced muscles in arms, belly, and legs	21.9	Yes	28.1	15.8	0.01
116	Male model with reduced WHR of 0.70	45.3	Yes	45.1	45.7	0.50

To end this paragraph, Table 8 summarizes our overall research findings.

Table 8: Overall research findings

MANIPULATION: INSERTED OR ENHANCED CUE TYPE	Results in line with EP	Contra- dicting EP	No significant impact
<i>Non-sex-specific cues of sexual attractiveness</i>	19	-	-
<i>Cues of male sexual attractiveness</i>	12	2	-
<i>Cues of female sexual attractiveness</i>	25	3	3
<i>Combined cues</i>	6	1	1
<i>Reversed cues</i>	3	1	-
<i>Reliability check with no manipulations or with neutral cues</i>	4	Because these had no impact on scores	
TOTAL	69	7	4

This global overview of my findings clearly shows the validity of the EP perspective as a guiding framework for cue management. Of the 80 ad sets I used in my experiment, only seven yielded results that contradict EP hypotheses, whereas 69 yielded results in support of EP hypotheses. Moreover, the four ad sets in which no manipulations were made or where

neutral cues were manipulated did not yield any significant impact results. Therefore Miller seems to have had a point when he remarked that *only* fitness-related cues can succeed in drawing our attention and eliciting affective reactions.

CONCLUSION AND DISCUSSION

In this paper I started by arguing that – following the Elaboration Likelihood Model – one can distinguish between two forms or prototypes of advertising management: means-end-chain management and cue management. MEC management tries to persuade the consumer by providing relevant information (product or brand attribute information) to influence her/his attitudes towards the product or brand. Cue management tries to induce positive feelings by inserting or enhancing certain cues in the ad (such as music, humor, attractive people, babies, animals, etc.) and attempts to influence the attitudes of the target group by coupling these positive feelings (ad-likeability) to the advertised product or brand. This distinction between cue and MEC management can also be situated within the context of contemporary psychological theory and research revealing that there are two distinct brain systems at work in human information processing and decision making. Cue management relies on System 1 (S1, evolutionarily old, unconscious/preconscious, automatic, fast, and intuitive), whereas MEC management is more dependant on System 2 (S2, evolutionarily recent, conscious, controlled, slow, and reflective).

Although many research projects have investigated the effectiveness of specific cues such as music, humor, or the use of attractive people or celebrities in ads, no embracing theoretical framework for cue management has been suggested yet. I have argued here that

EP might provide the advertising manager with such a framework. Indeed, on the one hand, EP investigates and describes the mental organs making up the human mind. Since these mental organs have to be understood as products of the Environment of Evolutionary Adaptedness (EEA), and therefore as evolutionarily old, largely unconscious or preconscious, and working fast and intuitively, the relevance of EP for revealing characteristics of S1 can hardly be overestimated. Moreover, EP also aims at identifying the specific cues that activate each of these mental organs, which again underscores the relevance of EP as a framework for cue management. With Miller (2009), we can call these cues “fitness cues.” As Miller pointed out (2009:56): “Natural selection cannot favor animals’ responding to any cues that do not identify an opportunity to promote their survival and reproduction.” This means that, according to EP theory, fitness cues – and *only* fitness cues – will succeed in appealing to consumers and eliciting affective reactions. Cue managers aiming to increase advertising effectiveness through increased ad-likeability must therefore have a thorough knowledge of the mental organs of the consumer target group (e.g., males versus females) and the corresponding cues that will activate these mental organs. That is why I believe EP to be the only perspective on human nature capable of providing the cue manager with a sound theoretical foundation. As a framework for cue management, EP can then be used either for academic or managerial purposes.

In the second part of this chapter, I have presented the results of a large-scale experiment investigating the validity and potential fruitfulness of this framework. I created 80 ad sets, each consisting of a neutral ad and a manipulated ad version in which fitness cues were either inserted or enhanced. The results – with less than 10% of the ad sets contradicting EP hypotheses, and almost 90% of the research findings being in line with EP predictions – overwhelmingly confirmed the legitimacy of the EP-based cue management framework.

Some manipulations even succeeded in creating a 90% (forced choice) preference for the manipulated ad, that is, the ad in which fitness cues were either inserted or enhanced. Moreover, the point I made following Miller (2009) – that *only* fitness cues can elicit an affective reaction and therefore increase advertising effectiveness – was equally confirmed by our findings. Indeed, none of the four ad sets in which I inserted no or neutral manipulations, led to significant deviations from the 50/50% response one expects by chance alone. Some of the results also proved the value of the EP perspective over more socio-cultural views on consumers and advertising. For instance, we currently live in Western societies in a culture where there is a high focus on fitness, sports, working out, being active, and having well-muscled bodies for both males and females (although more pronounced for males). From a socio-cultural perspective, one would therefore predict higher likeability scores for ads featuring well-muscled models, even if these models are female. Yet EP predicts that well-muscled bodies are only attractive as male cues to females and not as female cues to males. Ad set 97, in Table 7 (together with ad sets 91 and 140 in Table 4), clearly proves the better predictive power of the EP perspective over the more socio-cultural perspective on the nature of consumers.

However, many questions remain unresolved. How pronounced must cues be in order to be the most effective? I have noticed, for instance, that for some cues (e.g., full red lips, a blush on the cheeks, the showing of naked skin, etc.) there is only a tiny line between making the female model look more sexy (with a corresponding positive impact on ad-likeability) and making the model look whorish (with a corresponding negative impact on ad-likeability). Perhaps the failure of the neonatal traits I enhanced in some ad sets must equally be ascribed here to making the corresponding cues (e.g., enlarged eyes) too pronounced, causing faces to look unnatural. Also, with combinations of cues, the

manipulations can become too obvious, leading to lowered ad-likeability scores, with consumers feeling betrayed by the all-too-obvious Photoshop work of the advertising boys. On the other hand, when cue manipulations are too subtle, they may go unnoticed and have no impact at all on ad-likeability.

Another point I want to stress is that some cues seem to work “better” than other cues, or are more effective for one sex (or target group) than the other. Since I only measured primary affective reactions through forced ad preference scores after a three-second exposure (and did not, for instance, conduct in-depth interviews or focus group discussions with my respondents regarding their ad preferences), I can only guess why this is the case. Although I have tried to make some educated guesses in my table comments, it is clear that much more research is needed here. Some cues even polarized the reactions of male versus female respondents, especially cues about sexual willingness. It must therefore be stressed that cues don’t work in a vacuum, but are always interpreted in a specific context by a specific consumer. Depending on the context, cues may well be interpreted totally differently by different (groups of) respondents. At this point, I want to underscore the semiotic nature of cues. Indeed, all cues are also signs, that is, they are something that stands for something else. A 0.70 WHR stands for fertility, an expensive car or suit stands for high social status, a red blush on the cheeks may stand for health, but may also stand for sexual arousal or even plain embarrassment. And just as semioticians distinguish between natural and conventional signs, cues can be more of the natural or more of the conventional type. The WHR is an example of a natural cue, and may prove to be very stable across cultures. But cues about high social status (such as jewelry or an expensive suit) may be highly conventional and therefore only work in a specific cultural context or for specific target groups. This means that inserting or enhancing cues in ads can’t be compared to

adding salt to your potatoes or pepper to your soup. Rather it is more akin to high-end cuisine in which very specific ingredients are handled with extreme care and in precise amounts.

My research project must also be regarded as being substantially or even completely explorative. To my knowledge, this is the first project of its kind (especially in terms of scale and methodology), which leaves many questions unanswered. For instance, I only investigated cues to sexual attractiveness. Currently, EP – and especially the subfield of evolutionary aesthetics (for a good overview, see Volland & Grammer 2003) – is investigating many non-sexual cues such as music or landscape preferences, biophilia, art and design, and esthetic preferences in the world of artifacts. Many of the findings of EP in this field can of course also be used for cue management purposes inside or outside an advertising context (e.g., in product design and packaging). Even new fields within the marketing communication profession can profit from EP as a guiding framework. An area of growing interest such as sensory marketing, for instance, will probably be able to benefit from what EP has to say about our evolved esthetic smell, touch, or taste preferences.

Some remarks must also be made regarding the research methodology used in this experiment. Although I have tried to put some variation into the product classes for which I designed the ads, the question remains whether fitness cues perform equally well across all product classes and across different persuasion contexts (e.g., political campaigns). Also, my measure of advertising effectiveness (forced choice ad preference) must in future research be compared to more standard measures of ad-likeability, and to other measures of advertising effectiveness (such as brand-likeability, purchase intention, ad recognition, or ad recall).

Finally, and perhaps most importantly, there are those cues that were found to be in stark contradiction to standard EP theory (such as the high-status female cues turning out to be attractive to both male and female respondents in our experiment). Again, further research is needed here, but I think that EP can profit especially from the models and insights developed within the field of semiotics. This means that one has to investigate cues in their pragmatic sign dimensions, for instance, researching the iconic, indexical, or symbolic properties of cues, their natural or conventional nature, or the specific signifiers and signifieds that work in specific contexts. All too often, non-semioticians take signs, signification, and meaning making for granted. But if semiotics has made one thing clear, it is that the process of signification and meaning making – although a self-evident activity in which we are constantly engaged in throughout our everyday life – is far from being self-evident. Does the jewelry of the model in fact function as a cue to her high status, or is it a cue signifying her uniqueness, and would it therefore have functioned in the same manner if the model had been wearing a jeans jacket? As a semiotician, I am convinced that at this point semiotics has a lot to offer to EP, although this might mean that the current EP model, in which human beings are seen as information processors (comparable to computers), must be exchanged for a model in which humans are first and foremost seen as meaning processors.

Many of these questions are not easy to answer, but more research on the effectiveness of fitness cues in ads will surely lead us to more effective cue management practices. Ethical questions can arise, such as when cue management insights should be used in advertising to kids or in political advertising. But one can of course use these same insights for socially valued projects (e.g., I am currently investigating the usefulness of the cue management

perspective within a social marketing and health communication context). Stories of irresistible buy buttons being manipulated by unscrupulous marketers have little to do with our current cue management model. Moreover, this kind of research can also lead to new insights into the workings of consumers' System 1 functioning – the importance of which can hardly be overestimated. Indeed, according to many dual processing theorists, S1 has to be seen as the default and dominant system of information processing, while S2 is a uniquely human process and as such is a recently acquired plug-in that does a great deal less than we generally assume. This is in line with Reber (1993), who argued for the “primacy of the implicit,” proposing that consciousness was a late arrival in evolutionary terms, preceded by unconscious perceptual and cognitive functions by a considerable margin. He suggested that consciousness provided a unique executive function in human beings, but that this had led to an illusory belief in consciousness as the primary cognitive system. We hope that our cue management research projects will contribute to the unmasking of this illusion.

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