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The marketing of evolutionary psychology

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ABSTRACT

The marketing function extends beyond the realm of goods and services. Scientific ideas must also be properly marketed using appropriate persuasion strategies. Evolutionary psychology suffers from an image problem amongst marketing scholars, many of whom remain uninterested at best and hostile at worst in applying the evolutionary lens within their research programs. This is in part due to a poor understanding of key tenets of evolutionary psychology coupled with an animus toward the framework rooted in several recurring cognitive and affective hindrances. The reality is that innumerable theoretical, epistemological, methodological, and applied benefits would accrue to marketing academics and practitioners alike by adopting the evolutionary framework within the science and practice of marketing.

> "Humans are no more exempt from the laws of gravity than from the laws of evolution. Behind individual peculiarities and cultural masks, there are universal faces reflecting our innate tendencies. Not to utilize knowledge on how the genes sway the behavior of the average individual would be a gross mistake. Adapting society to human nature may, in fact, be the biggest challenge of the present century. Our great feats of engineering, from building the pyramids to sending a man to the moon, have been the easy tasks. The real challenge in shaping the future Earth lies in dealing with the nature of being human."
>
> Grinde (2005, p. 327)

In fall 1990, I began my doctoral studies at Cornell University. During that first semester, an assigned book in Professor Dennis Regan's social psychology course irrevocably shaped my eventual scientific career. Regan asked the class to read *Homicide* (Daly & Wilson, 1988), a book coauthored by two pioneers of evolutionary psychology. In it, they examined a broad range of criminal behavior (e.g., child abuse, domestic violence) using the evolutionary lens. The explanatory elegance and theoretical coherence of the framework was so powerful that I decided that I would eventually apply it to consumer research. In due course, this led to my founding and developing the field of evolutionary consumption. For many years, I was the sole professor housed in a marketing department seeking to Darwinize the field. It was a lonely academic existence buttressed by my good fortune at having several bright graduate students eventually join my research program. With that in mind, I am delighted to see the growing number of marketing scholars applying the evolutionary lens within their work thus necessitating the need for the current special issue.

In my quest to incorporate the evolutionary lens within the marketing discipline, I have experienced every conceivable form of resistance that one might expect when challenging the accepted orthodoxy in a given discipline. This is a classic marketing problem except in this case instead of marketing/selling a product, I was faced with the unenviable task of having to market/sell "heretical" ideas. To do so required a two-step approach: 1) fully understand the reasons that scholars in general and marketing scholars in particular exhibit animus toward evolutionary psychology; 2) offer a clear set of benefits that would befall the discipline via the adoption of the evolutionary lens. With that in mind, the structure of this article is as follows. I begin with a brief overview of the method of evolutionary psychology along with an examination of one of its key foundational tenets (domain-specificity of the human mind), followed by some common obstacles to accepting the evolutionary lens, and I conclude with a summary of key benefits to various stakeholders in adopting evolutionary principles within our discipline.

1. Key precepts of evolutionary psychology

The epistemology of evolutionary psychology consists of three unique components (Saad, 2017): 1) a delineation between proximate and ultimate causes (cf. Scott-Phillips, Dickins, & West, 2011). Much of science offers proximate explanations, namely an elucidation of the *how* and *what* questions (e.g., what are the physiological processes inherent

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to asthma, and how might asthma symptoms be alleviated?). Ultimate elucidations address the Darwinian *why*, specifically why would a given behavior or trait have evolved to be of that form (e.g., why are men more likely to be unforgiving of sexual infidelity than women)? These two levels of analyses do not compete in a zero-sum epistemological game rather they complement one another in yielding a fuller account of phenomena involving biological beings. 2) A capacity to generate nomological networks of cumulative evidence in support of an evolutionary position (see also Schmitt & Pilcher, 2004). The objective is to identity as many distinct lines of evidence stemming from radically different cultures, time periods, disciplines, paradigms, and methodologies, all of which yield converging veracity for the phenomenon in question. It is important to note that this is not a mega literature review rather it is a way of constructing an evidentiary network, which when completed serves as an unassailable edifice of scientific corroboration. Saad (2017) demonstrated this process using three separate examples, the biological bases of toy preferences, men's evolved preference for the hourglass figure in women, and the evolutionary and biological roots of loss aversion. 3) The construction of a unified tree of knowledge (consilience) wherein scientific phenomena are logically and coherently connected starting with established general evolutionary principles at the root node (e.g., sexual selection), which flow to middle-level theories and effects (e.g., parental investment theory), and finally to leaf nodes that correspond to falsifiable hypotheses (e.g., women sample more information prior to selecting a mate; Saad, Eba, & Sejean, 2009). For additional details about such evolutionary trees of knowledge, please refer to Buss (1995), and Ketelaar and Ellis (2000).

Next, I demonstrate a key tenet of evolutionary psychology, the domain-specificity of the human mind, via an examination of the cheater detection module and the adaptive nature of human memory.

1.1. Domain-specificity: cheater detection and adaptive memory

One of the defining tenets of evolutionary psychology is that the human mind is composed of domain-specific systems that have evolved as adaptive solutions to recurring evolutionary challenges (e.g., evade dangerous predators, secure appropriate food sources, identify a suitable mate, invest in and protect kin, forge non-kin alliances). The “Swiss army knife” is an apt metaphor here in that each blade is used for a specific purpose (Cosmides & Tooby, 1994) as compared to the singular all-purpose knife blade (as is implied by traditional domain-general cognitive processes). The cheater detection module is one such domain-specific system (Cosmides, 1989) that evolved as a means of regulating social exchanges between individuals. The paradigm pits people's performance when solving a domain-general version of an abstract reasoning problem (Wason selection task) against its logically equivalent domain-specific counterpart. The Wason selection task is an exercise in deductive reasoning that requires participants to establish whether the conditional rule “If *P* then *Q*” holds. Four cards are shown, each of which has one of the following showing: *P*, *Not P*, *Q*, and *Not Q* (the hidden side of each of the four cards contains the opposite Boolean value). Participants are asked to identify the minimal number of cards that must be flipped in order to know whether the rule is violated (correct response: *P* and *Not Q*).

Several highly complex and intricate studies have repeatedly shown that people's performances are vastly superior when the task is expressed using concrete real world conditional rules that involve the detection of cheating in social exchanges such as “If you drink coffee from the communal jar, you must deposit $0.50 in the communal piggy bank” (see Cosmides, Barrett, & Tooby, 2010; Cosmides & Tooby, 1992; Fiddick, Cosmides, & Tooby, 2000, for the exquisitely granular demonstrations of domain-specificity). A strong test of the universality of the cheater detection module requires that it be tested on a population stemming from a radically different cultural setting. Using appropriately altered versions of the Wason task, Sugiyama, Tooby, and Cosmides (2002) confirmed the domain-specific effect using participants from the nonliterate Shiwiar of Ecuadorian Amazonia (hunter-horticulturalists). Further evidence of the domain-specificity of the cheater detection module comes in the form of neuropsychological data. A patient suffering from brain damage exhibited differential responses to two versions of the Wason selection task, both of which were evolutionarily relevant but only one of which dealt with cheater detection (Stone, Cosmides, Tooby, Kroll, & Knight, 2002). Note how the nomological network approach is used to generate cumulative evidence for the domain-specific nature of the cheater detection module (Saad, 2017).

Our evolved ability to detect cheaters is only advantageous to the extent that it allows us to remember and perhaps avoid such individuals in future interactions. Several scholars have indeed found that cheaters' faces and names are more likely to be recalled (Chiappe et al., 2004; Mealey, Daood, & Krage, 1996). More generally, human memory consists of a set of adaptive cognitive systems (Klein, Cosmides, Tooby, & Chance, 2002; Schwartz, Howe, Toglia, & Otgaar, 2013), one element of which involves the capacity to differentially recall evolutionarily relevant information. This functional-evolutionary logic has been used to document the greater spatial recall of high calorie foods by women (Allan & Allan, 2013) and by both sexes (New, Krasnow, Truxaw, & Gaulin, 2007); adolescents' better recall of survival-related information regarding fruits (Prokop & Fančovičová, 2014); the greater spatial memory recall of beautiful women's faces by both sexes (Becker, Kenrick, Guerin, & Maner, 2005); men's greater likelihood of recalling status products after being primed with a photo of a beautiful woman in sexy attire (Janssens et al., 2011); and women's superior recall of status products when in the ovulatory phase of their menstrual cycles (Lens, Driesmans, Pandelaere, & Janssens, 2012). Finally, several scholars have documented the so-called survival processing effect, namely information is better recalled when it is associated with a survival scenario (Nairne, Pandeirada, & Thompson, 2008; Nairne, VanArsdall, Pandeirada, & Blunt, 2012; Tay, Jonason, Li, & Cheng, 2019). This effect has been replicated with children ranging from four to twelve years of age (Aslan & Bäuml, 2012; Pandeirada, Pires, & Soares, 2014). Most if not all of the latter findings would have been impossible to uncover void of an evolutionary lens. Taken together, the cumulative results stemming from radically different sources serve as a coherent and unified narrative for the adaptive roots of human memory.

Consumer scholars have studied countless memory effects albeit always at the proximate level. The findings covered here highlight the manner by which an ultimate lens affords us with novel insights about human memory that complement the existing edifice of valuable proximate findings. A similar domain-specific adaptationist lens could help scholars explore ultimate explanations for other functional areas of interest to consumer researchers including but not limited to motivation, perception, attitude formation, and decision making (see Saad, 2007, chap. 2).

2. Obstacles to accepting evolutionary psychology

The full gamut of recurring criticisms of evolutionary psychology fall into one of two distinct camps, namely ideological/affective or epistemological/cognitive obstacles (Buss & von Hippel, 2018; Cabeza de Baca & Jordan, 2012; Jonason & Schmitt, 2016; Saad, 2008a, 2011; Thagard & Findlay, 2010). It is important to understand these hindrances lest they persist and continue to delay progress in applying evolutionary principles within the consumer behavior and marketing disciplines.

I begin with the “evil” charge. Given that evolutionary principles have been usurped at times to support evil ideologies (social class elitism, eugenics, Nazism), many individuals hang on to the outlandish notion that evolution in general and evolutionary psychology in particular are part of an evil ideological cabal (Perry & Mace, 2010; Segerstråle, 2000). Right-wing conservatives detest evolution because it is perceived as part of a grand atheistic initiative. Left-wing activists

abhor evolutionary psychology because it is apparently used to justify institutional injustices (e.g., if evolved sex differences are acknowledged, sexism will never be eradicated). The reality is that those drawn to study evolutionary psychology are on average more liberal in their political views than the American general populace (Tybur, Miller, & Gangestad, 2007). That countless historical cretins have usurped evolutionary principles to justify their political ideologies says nothing about the scientific veracity of the principles themselves. If we were to shut down every scientific enterprise that might lead to nefarious downstream effects, we should have refrained from studying physics since it led to the development and use of the atomic bomb.

An important affectively based disdain of evolutionary psychology is the so-called human reticence effect (Ranney & Thanukos, 2011). Many individuals are perfectly happy to accept that evolution is relevant for plants and animals. However, there is a visceral rejection of the notion that the same evolutionary processes are relevant in explaining human phenomena. Even evolutionary biologists at times exhibit this illogical stance in that they fully accept the theoretical principles and epistemological foundations needed to explain the mating behaviors of the salamander and the zebra finch but when these are applied to humans they are resoundingly rejected as “just-so stories.” A related bias is the willingness to concede that evolution has forged human bodies but then doggedly reject that evolutionary forces have shaped human minds (the “evolution stops at the neck” bias). These ideological roadblocks are evident in that acceptance of evolutionary theory does not necessarily translate into the corresponding acceptance of key tenets of evolutionary psychology and vice versa (Ward, Wallaert, & Schwartz, 2011). Returning to the human reticence effect, consumer psychologists are particularly prone to this bias in part because comparative psychology (inter-species comparisons) has not been within the theoretical purview of the field (but see Morwitz, 2014 for a recent attempt to achieve such a rapprochement). There are several million species on earth (Mora, Tittensor, Adl, Simpson, & Worm, 2011), a true marvel of biological diversity. For all species except for humans, scientists would never consider studying animal behavior bereft of an understanding of the species' evolutionary trajectory. And yet when it comes to humans in general and consumers in particular, biology seems somehow irrelevant to the task at hand.

Another frequent misconception about evolutionary psychology is the notion that it is used to justify if not condone a broad range of ugly human realities. Humans are at times cooperative creatures capable of altruism, love, generosity, and kindness, and at times they can be competitive, brutal, and downright criminal. Evolutionary psychologists provide scientific explanations for the full range of human experiences including otherwise reprehensible realities (incest, infanticide, adultery, rape, and war). Of note, this in no way suggests that they are justifying, supporting, or condoning these phenomena any more than a dermatologist who studies melanoma is justifying, supporting, or condoning skin cancer. To understand the forces that drive our inner angels and demons requires of us that we tackle such issues unencumbered by political correctness and other ideological constraints. On a related note, to argue that men and women have evolved the desire to cheat on their long-term partners does not imply that we are doomed to do so. Providing evolutionary and biological explanations for human behavior does not suggest that we do not possess agency over the choices that we make. We might have an evolved desire to stray from our monogamous unions, but this is tempered by an evolved moral compass that might stop us from succumbing to such temptations. Biological/genetic determinism is a falsehood that solely resides in the minds of those who have little to no understanding of evolutionary psychology.

Some detractors who wrongly proclaim that evolutionary psychology preaches genetic determinism succumb to such thinking when they incorrectly presume that to offer an evolutionary explanation for a contemporary phenomenon implies that there is a specific gene (or set of genes) that codes for that preference. Hardcore pornography that is produced for heterosexual males contains universally recurring contents and themes that have been explained using foundational evolutionary principles (Kilgallon & Simmons, 2005; McKibbin, Pham, & Shackelford, 2013; Pound, 2002). This does not mean that there is a “gene for pornography” any more than there is a “gene for shopping.” Rather, pornography is successful because it usurps ancestral mating adaptations to its service in modern settings. In a diametrically opposite manner to those who abhor so-called genetic determinism and its supposed reductionism, another camp of critics demands that adaptive explanations be reduced to the gene level (“Show me where this preference is coded in our genome”). Evolutionary psychologists are accused of both being genetic reductionists by one camp and of the exact opposite by another camp! Charles Darwin explained the evolution of life forms without knowing the mechanisms of heredity. Similarly, evolutionary psychologists are not required to identify the exact means by which an adaptation is coded within the genome in order to make progress.

Perhaps the most common cognitive hindrance in accepting evolutionary psychology stems from individuals' epistemological resistance in accepting the veracity of scientific elucidations of natural phenomena that occurred long ago (Conway & Schaller, 2002). This obstacle is uniquely irksome because it is often levied by academics who are quick to then add that this is at the root of the supposed penchant of evolutionary psychologists to engage in post-hoc just-so story telling. Needless to say, there are innumerable rigorous disciplines that explore phenomena that have taken place in a distant past (e.g., archaeology, cosmology, geology, and paleontology) via the application of a perfectly valid epistemology (Cleland, 2011). Astrophysicists disagree on whether the universe is static or expanding, on its shape, and its exact age, and yet few accuse them of engaging in “fanciful story-telling” even though they are investigating phenomena that occurred billions of years ago. This “deep time” cognitive bias is a manifestation of what Richard Dawkins referred to as Middle World, namely the human mind has evolved to comprehend time and space as it experiences it, and not at the quantum or cosmological levels. Foundational evolutionary concepts are difficult for most people to grasp precisely because we've evolved the cognitive biases that erect these epistemological obstacles (Rodeheffer, Daugherty, & Brase, 2011; Young & Persell, 2000).

Another cognitive obstacle closely linked to the “just-so story telling” canard is the supposed unfalsifiable hypotheses that are generated via evolutionary psychological principles. It is exasperating because it is breathtakingly incorrect (Ketelaar & Ellis, 2000 offer a thorough discussion of this point). Let us take a few examples from my own research. Saad and Stenstrom (2012) examined the effects of the menstrual cycle on women's beautification practices (e.g., wearing revealing clothes) and food-related behaviors (e.g., consuming calorically rich foods). We hypothesized (and found) using well-established evolutionary principles that women dressed more provocatively and ate richer foods during the fertile and luteal phases of their menstrual cycle respectively. There is nothing unfalsifiable about those two hypotheses. The pattern of data that would falsify these two hypotheses could not be any clearer. Saad and Vongas (2009) assessed how conspicuous consumption influences men's testosterone levels. In study 1, we hypothesized that men's testosterone levels would rise when driving a Porsche versus an old sedan, and this increase would be greater when driving in front of an audience (downtown Montreal) versus on a less populated highway. There is nothing unfalsifiable about these specific expectations. As a matter of fact, across two studies, several of our hypotheses were indeed refuted. Using parental investment theory (Trivers, 1972), a cross-culturally invariant and cross-species robust evolutionary principle, Saad and Gill (2014) hypothesized that women would succumb to the framing effect more so than men when evaluating prospective mates (e.g., 7 out of 10 people think a prospective mate is intelligent versus 3 out of 10 do not). There is nothing unfalsifiable about this exact prediction. Had men been found to exhibit the framing effect with greater frequency, the hypothesis would have

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been refuted (it was not). Finally, Saad (2008b) examined the near-universal preference that men hold toward the female hourglass figure by coding the advertised measurements of online female escorts originating from 48 countries from across the world. The waist-to-hip ratio that corresponds to the hourglass figure is between 0.68 and 0.72. Hence, had the data returned a ratio outside of that range, the hypothesis would have been falsified. The mean across the 48 countries was 0.72.

There are many instances wherein establishing findings within the evolutionary psychology literature have been subsequently challenged (if not refuted) including the link between women's ovulatory cycle and their shifting preferences for facial masculinity (Jones et al., 2018). Epistemologically speaking, there is nothing tautological or unfalsifiable about hypotheses derived via the evolutionary lens. This erroneous concern arises from an inability to understand how specific hypotheses are generated using evolutionary principles that were shaped in a distant past. These principles, which constitute foundational nodes in the consilient tree of knowledge mentioned earlier, have been typically validated using nomological networks that adhere to an evidentiary threshold that is extraordinarily higher and more rigorous than anything that marketing scholars are accustomed so. Those who continue to levy the “unfalsifiable” attack against evolutionary psychology constitute proud members of the society of flat-earthers of the human mind.

What are some variables that might help identify those most likely to succumb to these obstacles? Perry and Mace (2010) found that the greatest predictor in rejecting evolutionary approaches to human behavior was an individual's field of study (social sciences) and this accounted for more than three times the amount of variance explained in comparison to the second largest predictor (religiosity). Furthermore, within the subgroup of social scientists, the number of years that an individual spent studying the social sciences was negatively correlated with the acceptance of evolutionary approaches to human behavior. On the other hand, individuals' level of knowledge of evolution was positively correlated with the acceptance of such an endeavor. Regrettably, many social scientists continue to suffer from biophobia (Daly & Wilson, 1988; Horowitz, Yaworsky, & Kickham, 2014), which is not helped by endemic misrepresentations and mistreatments of key evolutionary tenets in various psychology and sociology textbooks (cf. Takács, 2018; Winegard, Winegard, & Deaner, 2014) leading to recurring misunderstandings (e.g., biological determinism, non-falsifiability, naturalistic fallacy) about various aspects of evolutionary psychology (Confer et al., 2010; Varella, dos Santos, Ferreira, & Bussab, 2013). Many anti-evolutionary psychology positions are indeed rooted in ignorance and misinformation. For recent treatises on how to conduct research in evolutionary psychology and on how to teach evolution as applied to the social sciences see Lewis, Al-Shawaf, Conroy-Beam, Asao, and Buss (2017) and Legare, Opfer, Busch, and Shtulman (2018) respectively.

3. Benefits of adopting the evolutionary lens

It is never easy to engage in self-criticism, as the human ego is a fragile beast resistant to self-evaluations. It is perhaps not surprising then that most academics in general and marketing scholars in particular typically refrain from engaging in much-needed critiques of their field (but see Pham, 2013 for an honest examination of the field of consumer psychology). In most instances, such reflections fall on deaf ears and only serve to generate animus toward the scholars levying these criticisms. Many of these reproaches (e.g., disjointed field, lack of replication, overreliance on convenience samples, uninteresting research, lack of general laws) can be attenuated if not eradicated by adopting the evolutionary lens including achieving greater consilience, interdisciplinarity, and methodological pluralism; lesser reliance on WEIRD samples; and more frequent direct and conceptual replications (Saad, 2017). Several distinct groups of stakeholders stand to benefit from an incorporation of evolutionary theory within the marketing and consumer behavior disciplines including marketing academics, marketing practitioners, and policy makers operating within the marketing realm, a brief summary of which follows next.

In the same way that technological advances allow scientists to study new problems (e.g., use of fMRI technology in neuromarketing), evolutionary theory permits marketing scholars to tackle problems using a unique epistemological lens that recognizes the distinction between proximate and ultimate explanations. Innumerable research questions and hypotheses would have remained outside of the purview of marketing scholars were it not for the illuminating lens of evolutionary psychology. The manner by which genetic relatedness and genetic assuredness impact gift giving practices (Saad & Gill, 2003; Tifferet, Saad, Meiri, & Ido, 2018), the effects of birth order on consumer innovation and conformity (Saad, Gill, & Nataraajan, 2005), and ovulatory shifts in prosocial orientation (Stenstrom, Saad, & Hingston, 2018) would have been impossible to document void of an understanding of key evolutionary principles. The evolutionary lens yields findings that more often than not pass the *That's Interesting* epistemological test (Davis, 1971), a benchmark that most marketing studies fail to achieve (Armstrong, 2003). Good science requires more than methodological and theoretical rigor. It must titillate our intellectual imagination in ways that most marketing scholars are unwilling to explore because they suffer from methodological and field fixation (Sternberg & Grigorenko, 2001), methods myopia (Davis, Golicic, Boerstler, Choi, & Oh, 2013), and knowledge myopia (November, 2008). To unlock the mysteries of human nature is a profoundly exciting scientific initiative that transcends across intellectual landscapes, methodological traditions, and paradigmatic outlooks. Marketing scholars should be at the forefront of the revolution taking place at the nexus of psychology and biology.

From an epistemological perspective, one of the key differences between the natural sciences and the social sciences rests in the level of consilience achieved by each of the two camps. The natural sciences operate within unified meta-frameworks and established cores of knowledge whereas the social sciences generate insular and disjointed paradigms that oftentimes contradict one another. Several generations of eminent marketing scholars have repeatedly noted the disorganized nature of the marketing discipline (cf. November, 2004) notwithstanding the scientific rigor of our paradigms. Numerous scholars across a wide range of behavioral fields have argued cogently that evolutionary theory should serve as the unifying framework within their particular disciplines (Gintis, 2007; Henriques, 2003; Kanazawa, 2004a; Wilson, 1998). As I've explained elsewhere (Saad, 2007, 2008a, 2017), evolutionary theory provides a consilient meta-framework for organizing consumer research. Consumers' perceptual, affective, cognitive, and behavioral systems did not arise out of thin air. They are the product of well-documented evolutionary forces that define our common biological heritage.

Evolutionary theory offers an epistemological shortcut in determining the veridicality of a hypothesis or theory (Kanazawa, 2004b). For example, the standard social constructivist viewpoint that the environment is solely responsible in shaping our otherwise blank slate minds (Pinker, 2002) is easily falsifiable at the conceptual level. Specifically, there is no theoretical basis for assuming that the human mind is outside the purview of evolutionary forces that have otherwise shaped all other biological organs, morphological traits, and behavioral patterns across innumerable species including *Homo sapiens*. One of the ways by which such evolved blueprints are identified in humans is to establish the existence of a given cognitive process in infants that are otherwise too young to have been socialized, namely they've yet to reach the cognitive developmental stage necessary for any relevant learning to have occurred. Countless such examples have been documented including the preferential responses to attractive faces (Langlois, Roggman, & Rieser-Danner, 1990; Slater et al., 1998), exhibiting a negativity bias (Hamlin, Wynn, & Bloom, 2010), the ability to detect spiders, snakes, and angry faces (LoBue & DeLoache, 2010;

Rakison & Derringer, 2008), the preference for sweets (Ventura & Mennella, 2011), the aversion to touch potentially harmful plants (Wertz & Wynn, 2014), and moral judgment, fairness concerns, and cooperation (Hamlin, 2013; Schmidt & Sommerville, 2011; Tomasello & Vaish, 2013). Great opportunities await those marketing scholars wishing to apply principles from developmental psychology to consumer research.

Many of the most radical scientific innovations in the history of human thought have taken place at the nexus of multiple disciplines (e.g., the mapping of the human genome). Interdisciplinarity is one of the strongest predictors of the importance of one's scientific work (Nissani, 1997; Sá, 2008). As I explained in Saad (2011), the *Human Behavior and Evolution Society* consists of scholars originating from more than thirty fields spanning the humanities, the social sciences, and the natural sciences. On the other hand, the leading academic societies in marketing and consumer research respectively, namely the *American Marketing Association* and the *Association for Consumer Research* consist almost exclusively of scholars housed in marketing departments. This is in line with MacInnis and Folkes (2010) who concluded that the field of consumer behavior is not interdisciplinary. The future of science is certain to include a stronger ethos of interdisciplinarity. Even for Nobel-prize winning works, scholars have called for increased interdisciplinarity (Szell, Ma, & Sinatra, 2018) albeit many obstacles will remain against such attempts perhaps none more common that the evolutionary imperative for territorial defense (Roy et al., 2013). By its epistemological nature, evolutionary theory engenders a commitment to greater interdisciplinarity (Garcia et al., 2011), which would infuse some much-needed new theoretical and methodological approaches to the marketing discipline.

Scholars emanating from professional disciplines (e.g., law, medicine, engineering, and business) are the most likely to levy concerns regarding the applicability of evolutionary theory in solving practical problems. This is not surprising given that these disciplines by definition straddle the pure versus applied research divide. Members of such professions will typically argue that they have been successful in practicing their trades with minimal (if any) understanding of evolutionary theory, so why should they bother with this framework now. At its most elemental level, this is an erroneous concern in that it is perhaps not a good pedagogic practice to seek to provide a one-to-one mapping between a given body of knowledge and its immediate practical application. Physicians spend much of their first two years learning about basic science, a great majority of which they will never use in their subsequent clinical lives. Lawyers study moral philosophy yet they will seldom if ever apply this knowledge within their practice. Engineers learn how to solve partial differential equations, yet few will ever encounter such mathematical challenges in their professional lives. It is important to also note that numerous practical applications for a given scientific finding are only reaped hundreds of years subsequent to their original discoveries. For example, mathematics is considered to be the most abstract of all scientific pursuits, with number theory being the most theoretical and purest subfield within mathematics. Most theorems from number theory possessed no practical applications for hundreds of years until their recent ubiquitous use in cryptography (computer security). It might seem that I am preparing to argue that evolutionary theory should be studied for its intrinsic sake, as it otherwise provides no practical applications. To the contrary, evolutionary theory has yielded innumerable real world practical benefits in areas as diverse as medicine (Nesse & Stearns, 2008), architectural and urban design (Kellert, Heerwagen, & Mador, 2008), public policy and personal decisions (Crawford & Salmon, 2004), law (Jones & Goldsmith, 2005), and agriculture (Denison, Kiers, & West, 2003) to name but a few examples (see also Roberts, van Vugt, & Dunbar, 2012). Interestingly, throughout my career, I have faced greater animus from marketing academics than from marketing practitioners, as the former are vested in protecting the orthodox paradigms of the field whereas the latter only care about what works in the real-world. The reality is that an evolutionary exploration of our consummatory nature has innumerable practical applications one example of which is the ability to properly navigate the local versus global advertising debate (cf. Saad, 2011, chap. 7).

Evolutionary theory can help us predict which new products will succeed or fail in the marketplace as a function of how close they are congruent with our evolved bodies, minds, and hence evolutionarily-rooted preferences. For example, publishers of romance novels who seek to develop storylines with a newly packaged “sensitive” male hero, one who does not ooze of ‘toxic masculinity,’ will fail due to one incontrovertible reality. Women, who constitute the great majority of the consumers within this product category, are uninterested in reading about such male characters. It is incongruent with their evolved mating preferences. More generally, new product development is central to the strategic orientation of most contemporary firms. Yet few firms have looked to the greatest of all product developers for inspiration, namely natural selection (Saad, 2011). An understanding of natural selection can help in designing new products or improving existing products. This is precisely the gist behind the nascent discipline of biomimicry (Benyus, 2002), which has recently witnessed an exponential growth of interest from new product developers, design engineers, and marketers alike. Humans aspire to produce instruments that rival a dog's olfactory abilities, or materials as strong as spider silk or as adhesive as a gecko's feet (Saad, 2011). Biomimicry offers a way to monetize green business practices within the ethos of sustainability.

Evolutionary theory gives rise to new industries. There now exist dating services that match prospective suitors based on their DNA profiles. The scientific premise behind this new service is rooted in an evolutionary understanding of assortative human mating. Specifically, whereas humans engage in positive assortative mating on some cues (e.g., height or personal values; cf. Buss, 1985), they display a preference for dissimilar individuals (i.e., negative assortative mating) when it comes to their immunogenetic profiles in order to maximize the ability of offspring to fight disease (Havlicek & Roberts, 2009). The evolutionary lens also offers novel approaches in established industries. Pharmaceutical and biomedical companies have been at the forefront of utilizing their understanding of evolutionary theory in designing countless products of extraordinary practical significance (e.g., vaccination programs; cf. LeGrand, 2001). The over prescription of antibiotics along with its misuse by patients (e.g., not completing the prescribed treatment) has given rise to a virulent class of superbugs. The process that has led to the existence of the superbug is a classic manifestation of natural selection.

Transformative consumer research refers to a laudable recent initiative, launched in 2005 by a group of marketing scholars (see Davis, Ozanne, & Hill, 2016 for a review), meant to explore ways by which consumers' lives and wellbeing might be improved. Regrettably, evolutionary thinking is conspicuously absent throughout this otherwise valuable effort. The sharp increase in the most severe chronic diseases in western societies (e.g., heart disease and diabetes) is largely due to a misalignment of our current environment with the ancestral environment in which humans evolved (Eaton, Cordain, & Lindeberg, 2002). And many of these diseases are rooted in poor consumer choices (e.g., unhealthy eating habits). A great majority of dark side consumption (e.g., pathological gambling, eating disorders, compulsive buying, pornographic addiction, excessive sun tanning) maps onto a universal sex-specific epidemiology (Saad, 2007, 2011; Saad & Peng, 2006). To fully understand why consumers succumb to these behavioral traps requires an understanding of how adaptive processes can misfire and hence become maladaptive. The bottom line is that we cannot fully address consumer wellbeing void of an understanding of the evolutionary forces that have forged our bodies and minds.

The economics of information approach dominates social marketing (Sprott & Miyazaki, 2002). Specifically, the accepted wisdom has been that if consumers engage in acts that decrease their wellbeing, this constitutes an irrational behavior and hence it must be due to a lack of

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information. Provide the proper public service announcement with the needed information provision and the irrational behaviors will apparently cease. And yet we know that this is a faulty approach that seldom works. For example, women sun tan more than men even though they are more knowledgeable about the deleterious consequences of this behavior (Saad & Peng, 2006). This has substantial implications about the optimal design of health intervention messages. Rather than providing young women with epidemiological data about melanoma, which they will likely ignore, show them visual images of the aesthetic damage to one's skin due to sun tanning. Similarly, young men who exhibit erectile dysfunction are much more likely to be heavy smokers (Natali, Mondaini, Lombardi, Del Popolo, & Rizzo, 2005). Providing them with medical information about the possibility of heart disease forty years down the line will prove less persuasive than exposing them to an image of a limp cigarette (Health Canada). In other words, the use of evolutionarily-relevant cues in nudging people to implement desired behavioral changes is necessary.

4. Conclusion

Over the past few years, editorials in leading marketing journals have implored marketing academics to conduct more meaningful, impactful, broader, interdisciplinary, integrative, and methodologically and conceptually diverse research (Dahl, Fischer, Johar, & Morwitz, 2014; Deighton, MacInnis, McGill, & Shiv, 2010; Moorman, van Heerde, Moreau, & Palmatier, 2019). Via its unique epistemology, evolutionary psychology answers that clarion call with alacrity. It generates more interesting research by virtue of its exploration of human nature. Furthermore, it promotes interdisciplinarity, encourages methodological pluralism, engenders greater consilience (unity of knowledge), fosters an ethos of direct and conceptual replications, and reduces the likelihood of relying on university students as convenience samples. Consumers are complex creatures shaped by a shared biological heritage and molded by unique environmental realities. To the extent that marketing scholars have ignored the dual forces of natural and sexual selection that have shaped *Homo consumericus*, the explanations that marketing scholars espouse will be incomplete depictions of a consumer's evolved biological human nature. Clearly, not all marketing scholars will pursue the evolutionary lens within their research agendas but at the very least all scholars tasked with understanding and predicting human behavior should be aware of the explanatory power of this unifying framework.

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