Dear readers,

It's finally over. The writing. The pain. The suffering. The 'stuffy' room. The snacks we shared. The experiences we shared. The sorrows we shared. The joys we… never mind. Well, there were some joys. Now that I'm writing this after having finished my R3, I'll probably be looking back with rose colored glasses, but I think I actually learned some things - I feel like I can better communicate from brain to paper; I feel like I can organize my ideas better; I feel like I improved at playing connect-the-dots; I feel really tired too because I've been working on this paper for forever. Overall, I am thankful for this experience between it's showed me that writing isn't all horrible, and in fact, there are, briefly, occasional moments of joy.

A quick history of my R3 - started researching advertising, then changed my topic to memory because there was more available research, then looked at relationships because my friend suggested it, then realized that I couldn't resist advertising. Pretty ironic if you ask me. I started by reading a bunch of papers, then found a common thread and thought that that would make for a good argument. Big mistake. Took two DChoi office hours to help me come up with a nuanced against-the-grain analysis, and even then I had to think about it for a while.

Another pretty difficult thing I experienced was trying to connect the baby points back to the papa point. I guess this was partly due to how I had written most of my analysis before my argument, and how I kept the bodies of my outdated analysis then just tacked on some "oh yeah this is how it relates to my thesis." Speaking of the thesis, I didn't realize I had one until my friend read through my (finished) paper.

BUT - and it's a big but - there were some positives. Firstly, after DChoi talked me through my new argument, I was super bummed because I thought I would have to rewrite every paragraph and redo all my analysis, and I guess I should have because that would have made one of the earlier points much less painful. But I didn't. Because I thought that it would be ok if I didn't and it wasn't but I thought it would be so I did less work and was happy. Ok but a real positive was that I enjoyed reading the research on advertising and was proud of the mind map that I drew to help me understand what the heck I was arguing. Also the title is a reference to how ads market to a different need than the actual product is used for, thus *adding* the markets together.

Finally, I would like to thank my mom, my goldfish, all the boys back home, and especially DChoi. He has been such an inspiration in both my writing and in how I've thought about life. I remember having a juicy chat after class one day, and we talked about learning and philosophy and some other cool stuff. Thanks Dr. Choi. Also thanks to Alan for making the class more fun. This is the only class that I have decent attendance in, and it's all because I get to see your beautiful face <3

Best wishes and hope you have a nice day,
Hollis

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Daniel Choi

WRI150

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# How Ads Add

We can all relate to the feeling of being swayed into purchasing a cheap product from an enticing advertisement. It might be how a person we look up to is in the advertisement, or how our friends are talking about it, or how we feel like we are missing something in life and this particular product seems to be the one key to unlocking a whole new world full of joy and perfection. No matter what persuades us, we usually end up deciding against purchasing the product, which raises a question: why are we so susceptible to buying things that go against rational consideration?

Dempsey and Mitchell explore this question in their study on implicit attitudes, which are how people unconsciously feel towards something, and they found that consumers do not always make logical decisions when faced with an emotionally charged option. To help explain this peculiar phenomenon, we examine three models that show how implicit attitudes are formed via a certain type of conditioning called evaluative conditioning, which in turn works by targeting the agent's limbic system, a primitive system that deals with basic emotions and drives. By applying Maslow's Hierarchy of Needs, we conclude that advertisements are able to use an individual's limbic system to override their executive function when making decisions. This finding helps us understand how advertisements have both a perceived need and an actual need, and the different ways those needs influence consumer purchasing patterns. In essence,

advertisements target consumers' limbic systems to create both an actual need and a perceived need, enabling them to market towards various consumer desires.

At first glance, advertising seems counterproductive – it tries to make consumers favor a particular product, even if it costs twice as much or is unhealthier than the alternatives. Except it actually works. An interesting question arises when two researchers try to examine this phenomenon and its relationship with implicit attitudes, the unconscious tendencies of consumers. Dempsey and Mitchell conducted a study on the influence of implicit attitudes on choice when consumers were given conflicting information. Each participant was offered two pens: one was shown with a series of positive images, and the other was explained to be structurally superior to the first pen. When asked which pen they would buy, the participants that did not form an explicit evaluation, meaning they did not think about and verbally express their opinions, chose the positively conditioned pen over 70% of the time. Even when asked to recall the qualities that made one pen superior to the other, participants still chose the positively conditioned pen (Dempsey & Mitchell, 2010), making us wonder, "Why do consumers choose products they feel better about rather than products they consciously know are superior?"

Dempsey and Mitchell offer three models to explain this implicit-explicit relationship, or the relationship between how consumers feel towards a product versus their actual purchasing patterns. The first model is the Meta-Cognitive Model (MCM), which argues that consumers can hold conflicting implicit attitudes, but their explicit behavior depends on which implicit attitude is retrieved from memory. Petty, Brinol, and DeMarree claim that "objects can be linked in memory to both positive and negative evaluations that can vary in the degree to which they are endorsed or not," and various factors can affect which memory is remembered, such as "the

number of prior positive and negative experiences, the recency of those experiences, and the context in which those experiences took place" (Petty et al., 2007). However, in the previous study, both pens had similar properties of memory salience – they were both introduced only once, both introduced at the beginning of the study, and were both relevant to the purchase of a pen. According to Petty et al., the pens should have had similar likelihoods of being recalled, but it was clear that the positively conditioned pen was more easy to recall. While the MCM does not explain our original question of why consumers choose illogically, it suggests that memories are important when considering the relationship between implicit and explicit attitudes.

The next model that Dempsey and Mitchell propose is the MODE model, which uses motivation and opportunity as determinants of explicit behaviors. The MODE model splits decision making into two parts: spontaneous and deliberate. Spontaneous decision making is caused by implicit attitudes and serves as a filter through which objects are viewed. Any immediate judgments and behaviors are spontaneous reactions to these altered perceptions. Deliberate decision making is based on a "behavioral plan" and involves some expenditure of effort. Individuals must have the motivation to "engage in the effortful analysis and also must have the opportunity (i.e., the time and resources) to do so" (Olson and Fazio, 2009).

For the pen study, the participants had the opportunity to make a deliberate decision – they had the relevant information and unlimited time – but they did not have the necessary motivation to expend cognitive effort to decide whether or not to purchase a measly pen. Dempsey and Mitchell conducted a second study in which some participants were incentivized to make a deliberate decision by telling them that they would need to explain their decision to a group of people. They found that the motivated participants chose the structurally superior pen

80% of the time, in contrast to the 30% for the unmotivated participants (Dempsey & Mitchell, 2010), supporting the idea that motivation and opportunity are predictors of how implicit attitudes influence explicit behaviors. While the MODE model explains why consumers sometimes choose inferior products, the model relies on the assumption that an implicit attitude exists in the first place and fails to account for how implicit attitudes are created.

To describe how these unconscious biases come to be, the third model that Dempsey and Mitchell cite, the "Associative and Propositional Processes in Evaluation" model (APE), explains that implicit attitudes are formed as a result of evaluative conditioning, defined as a change in liking due to an association with a positive or negative stimulus. The APE model subdivides cognitive processes into two groups: associative processes, which are characterized as "automatic affective reactions" in response to stimuli, and propositional processes, which are "evaluative judgments… based on syllogistic inferences" (Gawronski & Bodenhausen, 2006). Associative processes are often called implicit attitudes since they rely on unconscious thought patterns, and propositional processes are often called explicit attitudes since the consumer actively forms an opinion based on evidence.

According to the APE model, associative processes (and implicit attitudes) reflect a "change in the associative structure or… a temporal change in the activation of preexisting patterns" (Gawronski & Bodenhausen, 2006). Changing pattern activation refers to the cues from which certain processes are invoked. For the study with the pens, the memories for both the positively conditioned and structurally superior pens had similar chances of being recalled since Dempsey and Mitchell simply asked participants which pen they prefer. This implies that the implicit attitude was caused by a "change in the associative structure," which translates to an

unconscious tendency to favor or disfavor an object due to evaluative conditioning. Thus, the APE model satisfies the mystery of how implicit attitudes are created to influence consumer decision making by showing that implicit attitudes are a result of evaluative conditioning.

While the APE model explains that evaluative conditioning is the source of these unconscious tendencies, it does not explain why evaluative conditioning works. To answer this question, we will delve into the research on advertising, a field that generates hundreds of billions of dollars by taking advantage of this phenomenon called evaluative conditioning. By analyzing a plethora of advertising research on implicit bias and evaluative conditioning, we find that advertisements create a desire for a product by targeting the different parts of the limbic system. The main inputs to the limbic system are the hippocampus and the amygdala, which are involved in the processing of memories, emotions, and motivation.

The first of these structures is the hippocampus, the center for memory formation and development (Dartmouth, 2006). According to a study by Lee and Sternthal, advertisements are able to target consumers' memories to make it more likely for the consumers to recall the advertised product. Lee and Sternthal found that if an advertisement induced a positive mood, then consumers were more likely to recall the product when shown other items that the product was initially shown with (Lee & Sternthal, 1999). This linkage between the product and its surroundings suggests that a connection exists between an advertised product and the things that consumers immediately associate the product with.

Many advertisements use this connection by showing their products being used by notable people. These advertisements allow a product or brand to be associated with a figure that people will easily recognize, thereby increasing the likelihood of recalling their product. For

example, Old Spice has a series of advertisements that depict their hygiene products being used by Terry Crews, a famous American actor. After watching dozens of these advertisements, consumers will think of Terry Crews when they see Old Spice and think of Old Spice when they see Terry Crews, and the connection between the product and figure will be established. Since Terry Crews is seen as a manly, confident figure, the results from Lee and Sternthal suggest that consumers will associate those properties with Old Spice as well, making them more likely to purchase Old Spice because of its "manliness." By creating a link between a well-known person and the product they show, advertisements can correlate the two in consumers' memories and make certain favorable attributes be associated with their product.

In addition to influencing the hippocampus and memory, the limbic system also contains the amygdala, a "critical center for coordinating behavioral… responses to environmental stimuli, especially those with emotional content" (Dartmouth, 2006). A study by Lee, Hosanagar, and Nair found that advertisements target consumers' emotions – and thus the amygdala – in order to garner engagement and increase the company's popularity. Lee et al. reported that brand personality-related content (evaluated as emotional and philanthropic) was strongly correlated with higher engagement and is key for long-term brand building (Lee et al., 2017). This finding implies that companies display emotional content to make their company seem more like a living entity that has feelings and cares about others. Thus, it will be easier for consumers to engage with and become emotionally invested in the company than if they simply stated statistics and raw information, which would make them seem impersonal and uncaring about their customers. By appealing to the amygdala, the emotional center of the brain, companies are able to increase

engagement from consumers and make them more comfortable in purchasing the company's products or services.

Not only does the amygdala deal with emotional content, it also processes content related to social acceptance, such as fear, danger, and the possible risk of social betrayal. A study by Aggarwal, Gopal, Sankaranarayana, and Singh describes how companies target this aspect of the amygdala by using blogs to create trust between a company and its customers. Aggarwal et al. found that "negative posts exponentially increase the readership initially, and after a point its page views do not increase" (Aggarwal et al., 2012). One would think that sharing the negative aspects of a company would be harmful and decrease the company's credibility and status. However, Aggarwal et al. observed the opposite effect – sharing information that could potentially deter customers actually boosted the readership of a company's blog, thus attracting more visitors and increasing the company's popularity and sales. Sharing negative aspects of the company will make them be perceived as more credible and trustworthy than a company that curates an image of perfection, thus improving their reputation and making consumers more likely to buy their products. Companies utilize blogs to establish a trustworthiness that puts consumers at ease and makes them feel more comfortable in purchasing the company's products, and they do this by targeting the amygdala, specifically how it creates a desire for social acceptance.

Another important aspect of social acceptance is the respect of others and the need to be a unique individual. A study by Ackerburg found that advertisements can create a sense of prestige and superiority to make customers favor their products. Ackerburg concluded that "advertising that provides information on inherent brand characteristics should primarily affect inexperienced

consumers of a brand, while advertising that creates prestige or association should affect both inexperienced and experienced consumers" (Ackerburg, 2001). When consumers haven't had any experiences with a brand, they are able to think without pre-established biases about whether or not to purchase, hence informative advertisements will sway them. Once consumers become loyal users of a brand, advertisements that create prestige make consumers buy the product not because it is the most economically viable choice, but because it provides comfort since prestige indicates exclusivity and a higher social status. By appealing to consumers' desires for respect and uniqueness, advertisements are able to target the limbic system to sway customers to purchase their products for the image of respect and status.

From the analysis above, it is clear that advertisements take advantage of how the limbic system functions. However, a contradiction arises when we further analyze Ackerburg's study. Ackerburg found that informative advertisements affected inexperienced consumers, indicating that at some point, consumers can make rational decisions. However, when consumers become experienced users of the company's products, they are not influenced by informative advertisements to purchase more. In fact, Ackerburg found that informative advertisements even had a "declining effect on experienced consumers" (Ackerburg, 2001). This finding implies that the experienced consumers were not thinking logically when purchasing the products, and were influenced by the unconscious desires created from their limbic system. When they came into contact with the informative advertisements, they snapped out of their prestige-centered daze and realized that the product might not be worth buying. This result suggests that advertisements target consumers' basic emotions and desires to influence them to make illogical decisions by overriding their ability to think rationally.

Another question arises in how the transition between thinking rationally and being unconsciously swayed happens, and how consumers go from considering objective facts to making illogical decisions based on feelings. Even though the limbic system creates a desire to purchase a product that satisfies consumers' emotional and social needs, their executive functions should still work to realize that such a desire is unreasonable and deter the consumers from the initial purchase of the product. In psychology, there is a phenomenon called cognitive dissonance, and it occurs when an individual holds two contradicting beliefs. According to Acharya, Blackwell, and Sen, people change their social and political preferences "to bring them into closer alignment wit their action" and avoid cognitive dissonance (Acharya et al., 2018), suggesting that consumers will choose an option and then find a reason to justify it. So how do they choose between options?

According to Maslow's Hierarchy of Needs, basic needs such as physiological, safety, and social needs must be satisfied before higher level needs such as self-esteem and self-actualization can be fulfilled (Maslow, 1943). Applying this to what Acharya et al. found suggests that consumers will choose the option that fulfills their basic needs before looking for ways to satisfy higher level needs. By targeting consumers' limbic systems, advertisements are able to appeal to these lower level needs, so when consumers are facing this cognitive dissonance between using their higher level thinking to make a rational decision and purchasing a product that makes them feel good, they will be more likely to go for the path that satisfies their basic needs, which is what the advertised product is marketed towards. Thus, advertisements take advantage of this cognitive dissonance between the two differing desires to sway customers to purchase their products.

However, this explanation of consumer choice leads to another contradiction. When we take a closer look at advertising, there appear to be two types of needs that advertisements target. There is an actual need that will be fulfilled through actually owning the product, and there is a perceived need that will be fulfilled through the idea of owning the product. When advertisers use lower level needs to market a product that satisfies a higher level needs, they are taking advantage of how the limbic system and hierarchy of needs work. For example, when advertising kitchenware that will make cooking more convenient, the kitchenware is often shown with tantalizing food, making the actual need (convenience) appear as a basic need (satisfying hunger). Consumers are then swayed to purchase the kitchenware because their cognitive dissonance favors choosing the option that fulfills those basic needs.

When advertisers target a higher level need, our findings suggest that consumers will purchase the product for the lower level need, which is reasonable, but what about when they purchase a product for the higher level need? For example, why do consumers who might not need deodorant still purchase Old Spice because they think it will make them seem more manly? In the case of purchasing Old Spice, the consumers are looking to fulfill their higher level need of feeling manly and not for the lower level need of masking body odor. Typically, these higher level needs such as self-esteem and self-actualization are fairly abstract and require a fair amount of thought and reflection, so why do certain customers fulfill these higher level needs simply by buying everyday products? When consumers purchase basic products to satisfy these higher level needs, they do not realize that their higher level needs are being fulfilled, because they perceive the product as a way to satisfy their lower level needs. Thus, they do not put in the adequate time that would make them realize how their goals and aspirations are being temporarily satisfied by

simple products. By targeting different perceived and actual needs, advertisements are able to manipulate consumers' limbic systems and perceptions to effectively market to various levels of needs.

In summary, we answered several puzzling phenomena in advertising on why consumers make illogical choices based on implicit attitudes, where these implicit attitudes come from, how evaluative conditioning works by targeting the limbic system, and how advertisements use the limbic system to create a perceived need. It is important to note that the perceived need created by advertisements not only *relies* on the models and stereotypes in society, but actively shapes them. Advertisements can stress certain associations between certain people, ideas, or objects to shift our perception of them, and advertisements can also create new associations that can alter a society's view on a topic.

While advertising is restricted to marketing for now, it has the potential to become extremely dangerous – advertising targets the limbic system, meaning that they essentially suggest certain ideas and stereotypes straight to our unconscious mind, bypassing our mental barriers and questioning. With enough research and practice, a malevolent corporation could potentially abuse advertising techniques and develop it into a form of brainwashing that establishes uniform opinions and prevents healthy discussion. However, we can make it go the opposite way – by educating ourselves on the inner workings of advertising, we can learn to utilize it for positive social change.

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