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# The Role of Marketing in Consumer Behavior: How Brain Science is Shaping Modern Branding Strategies

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**ABSTRACT:** This paper explores the intersection of neuroscience and marketing, examining how brands like Liquid Death utilize neuromarketing principles to shape consumer behavior. By leveraging emotional engagement, shock tactics, and novelty, Liquid Death captures attention and fosters strong brand connections. Neuromarketing tools such as EEG, fMRI, and eye-tracking offer insights into consumer responses, optimizing marketing strategies for greater effectiveness. Additionally, the paper discusses the brand's storytelling approach and community-building efforts, which reinforce consumer loyalty. While neuroscience-driven marketing offers innovative ways to engage audiences, it also raises ethical concerns related to manipulation, privacy, and responsible marketing practices. The analysis underscores the balance between harnessing consumer neuroscience for branding and maintaining ethical transparency in marketing strategies.

**KEYWORDS:** Neuromarketing, Consumer Behavior, Emotional Engagement, Brand Recall, Cognitive Neuroscience, Novelty in Marketing, Decision-Making Processes, Dopaminergic Reward System, Ethical Considerations, Attentional Capture

## I. INTRODUCTION

The intersection of marketing and neuroscience has emerged as a dynamic field of study, reshaping our understanding of consumer behavior through the lens of brain science. The literature on this topic reveals a spectrum of insights that highlight both the potential and the complexities of applying neuroscientific principles to marketing strategies. Beginning with the foundational insights from (Javor et al., 2013), the authors underscore the necessity of distinguishing commercial marketing endeavors from the scientific rigor of consumer neuroscience. They note a duality in perspectives surrounding neuromarketing; proponents advocate for its capacity to enhance product development, while critics raise ethical concerns about its application. This discourse prompts a call for collaborative discussions among experts in business, neuroscience, ethics, and philosophy, emphasizing the need for a nuanced understanding of how consumer neuroscience can contribute to behavioral sciences. Their findings reveal a significant interplay between cognition and emotion, pivotal in shaping consumer behavior. Building on this foundation, (D. Shaw & P. Bagozzi, 2018) delve deeper into the neural mechanisms that underpin consumer decision-making. They articulate that neuroscientific tools provide invaluable insights into the psychological processes influencing consumer choices. By defining consumer neuroscience as the application of neuroscientific methods to marketing, they highlight the burgeoning investment from marketing research agencies into this interdisciplinary domain. Their work illustrates the importance of understanding the neural correlates of consumer behavior, thereby enhancing the efficacy of marketing strategies.

(Hasnain Alam Kazmi et al., 2019) Further expand the conversation by presenting recent advancements in neuromarketing, particularly focusing on consumer memory and cognitive behavior. They argue that comprehending the mechanisms behind shopping behaviors is essential for marketers aiming to influence consumer actions effectively. Their research emphasizes the role of neuroimaging techniques in validating marketing concepts, suggesting that these methodologies can provide significant insights into consumer preferences and decision-making processes. This exploration of neuromarketing not only illustrates its evolution since its inception in 2005 but also highlights its potential to revolutionize advertising strategies through a deeper understanding of consumer cognition.

Together, these articles construct a comprehensive narrative that elucidates the intricate relationship between marketing practices and consumer neuroscience, setting the stage for an in-depth exploration of how brain science is shaping modern branding strategies.

## II. LITERATURE REVIEW

The intersection of marketing and neuroscience has increasingly gained academic attention, resulting in a burgeoning field known as consumer neuroscience or neuromarketing. This literature review explores foundational theories, practical applications, ethical considerations, and key insights into how brain science is reshaping consumer behavior and branding strategies, with a focus on Liquid Death's unique marketing approach.

**2.1. Defining Neuromarketing and Consumer Neuroscience:** Consumer neuroscience is defined as the application of neuroscientific methods to understand the psychological processes behind consumer decision-making. According to Shaw & Bagozzi (2018), neuroscientific tools such as EEG (Electroencephalography), fMRI (Functional Magnetic Resonance Imaging), and eye tracking are being used increasingly to provide insights into how consumers react to advertisements, brand messages, and product experiences. Shaw and Bagozzi emphasize that consumer neuroscience is particularly valuable for understanding **implicit processes**—those subconscious factors influencing consumer behavior. Their work highlights that the investments from marketing research agencies in these tools have grown, underlining the industry's recognition of their potential to enhance marketing efficacy. Building on these insights, Hasnain Alam Kazmi et al. (2019) discuss the evolution of neuromarketing since its inception in the early 2000s. They argue that by using neuroimaging techniques, marketers can validate and refine advertising strategies, creating content that effectively resonates with consumer preferences. The study places particular emphasis on understanding **consumer memory and emotional processing**, critical elements in shaping brand recall and loyalty. This framework is especially applicable to the provocative marketing campaigns of Liquid Death, which use intense imagery and messaging designed to provoke emotional reactions that enhance memory retention.

**2.2. Emotional Engagement in Marketing:** One of the most consistent themes in neuromarketing literature is the importance of **emotional engagement** in marketing. Emotional arousal has been found to play a key role in memory formation, particularly in the **amygdala** and **hippocampus**, as highlighted by Eichenbaum (1994) and McGaugh (2000). These brain regions are pivotal in consolidating emotionally charged experiences into long-term memories. Liquid Death, with its controversial and shocking advertising, taps into these emotional systems, aiming to create a memorable brand experience. Emotional content, as Kazmi et al. (2019) suggest, leads to higher arousal, which facilitates **memory encoding** and enhances consumer recall, ultimately influencing purchasing behavior. Plassmann et al. (2007) provide additional insights into the mechanisms of emotional engagement, noting that advertising stimuli that evoke strong emotions—positive or negative—tend to be more effective in capturing attention and fostering brand associations. This aligns well with Liquid Death's strategy of using humor mixed with shocking visuals to elicit a broad spectrum of emotions, from laughter to disbelief. Such tactics engage both the **sympathetic nervous system** (linked to arousal) and the **reward pathways** in the brain, establishing a stronger bond between the consumer and the brand.

**2.3. Attentional Capture through Novelty:** Research suggests that marketing that significantly diverges from conventional norms is particularly successful in grabbing consumer attention. The concept of **novelty** in neuroscience, as discussed by Javor et al. (2013), plays an essential role in drawing and maintaining consumer attention. Novel stimuli activate areas in the brain like the **ventral striatum**, which are responsible for processing new information and rewarding experiences. Liquid Death's marketing uses unexpected elements—such as their “murder your thirst” slogan, horror-themed visuals, and dark humor—to create a disruptive impact. This aligns with the findings by Milosavljevic et al. (2012), who demonstrated that visually salient and surprising elements in advertisements can induce a **bias in consumer choices** by overriding rational decision-making processes. Plassmann and Yoon (2015) further add that incorporating novelty effectively can improve consumer engagement and positively impact brand recall. They suggest that by leveraging **unconventional marketing strategies**, brands can maximize visual saliency, leading to increased activity in the **visual and attention-related brain regions**. Liquid Death's branding, characterized by rebellion against traditional water marketing, exemplifies how using novel, shock-based content can amplify attentional engagement.

**2.4. Reward Systems and Consumer Loyalty:** Neuroscience research has also highlighted the role of **dopaminergic reward systems** in consumer loyalty. According to Hasnain Alam Kazmi et al. (2019), humor and emotional experiences in marketing trigger dopamine release, which is associated with pleasure and reward. Liquid Death frequently utilizes edgy humor to build an entertaining narrative around its product, providing a pleasurable experience for its consumers. Repeated exposure to such positive reinforcement increases **consumer loyalty** through the **reward circuitry** of the brain. Furthermore, MDPI's review of neuromarketing research indicates that when consumers interact with a favorite brand or a brand that aligns with their identity, there is increased activation in reward areas of the brain, such as the **nucleus accumbens** (Deppe et al., 2005). This is particularly relevant to Liquid Death, as the brand aims to create a community



that views itself as rebellious and against mainstream norms. By building an identity-driven marketing narrative, Liquid Death not only captures attention but also fosters a loyal following through neurological pathways that are connected to both **reward and identity**.

**2.5. The Ethical Landscape of Neuromarketing:** The use of neuroscience in marketing also raises important ethical questions. Javor et al. (2013) point out that the commercialization of neuroscientific insights blurs the lines between ethically sound consumer research and potential manipulation. Liquid Death's approach—characterized by its provocatively aggressive, in-your-face messaging—pushes these boundaries, raising questions about the ethics of using shock tactics to manipulate consumer behavior. Critics argue that this kind of marketing may exploit subconscious vulnerabilities, a concern that underscores the need for ongoing dialogue among neuroscientists, marketers, ethicists, and regulators.

Shaw & Bagozzi (2018) also stress the importance of ethical considerations in neuromarketing. They call for greater transparency and consumer protection when applying neuroscientific techniques to marketing. This is particularly pertinent for brands like Liquid Death, whose marketing strategies are aimed at creating strong emotional reactions that might bypass rational cognitive processing, making consumers more susceptible to influence without their conscious awareness.

**2.6. Consumer Memory and Brand Recall:** Memory plays a crucial role in how consumers perceive brands, as noted by Eichenbaum (1994) and McGaugh (2000). Memory can be categorized into **explicit (conscious)** and **implicit (unconscious)** types, both of which are critical in brand recall. Liquid Death's provocative content often embeds into both memory types, with the shocking and humorous nature of the advertisements forming **vivid episodic memories** and the repetition of the brand's core identity influencing **implicit preferences**.

According to Reimann et al. (2010), aesthetically provocative packaging and memorable brand slogans can significantly impact memory retention. Liquid Death's iconic packaging, which resembles a beer can more than a water bottle, serves as a prime example of utilizing **aesthetic distinctiveness** to leave a lasting imprint on consumers. By leveraging **visual memory** in a highly saturated market, Liquid Death ensures that it stands out, enhancing both **brand recall** and **consumer loyalty**.

The reviewed literature reveals that Liquid Death's unconventional approach to marketing leverages a mix of **emotional engagement**, **novelty**, and **reward mechanisms** that align with findings from consumer neuroscience research. By using shocking visuals, humor, and identity-driven narratives, Liquid Death taps into **attentional capture**, **emotional arousal**, and **memory retention** processes that are well-supported by neuroscientific studies. However, the ethical concerns raised regarding the potential manipulation of consumer behavior prompt further discussion on responsible applications of neuromarketing. Together, these insights provide a foundation for exploring how neuroscience-driven marketing can influence modern branding strategies, specifically through the case of Liquid Death.

**2.7. Role of Storytelling:** Storytelling is crucial in marketing because it enables businesses to connect with their clients on an emotional level. It boosts memory recall, which makes businesses more memorable and hospitable. By reflecting consumer experiences and objectives, storytelling helps to express a brand's identity and values, distinguishing it from competitors. A fascinating story attracts more attention than traditional advertising, increasing trust and confidence. They make tough issues more comprehensible, appeal to a diverse audience, and encourage social sharing, all of which increase brand exposure. Finally, a great narrative inspires people to act, whether via purchases or advocacy, making it an essential tool in modern marketing efforts.

**2.8. User-Generated Content:** User-generated content (UGC) is a powerful marketing strategy that makes use of content supplied by customers, such as reviews, images, videos, and social media posts. UGC promotes trust and authenticity by showcasing real-life experiences and perspectives, since potential buyers are more likely to believe their peers than traditional advertising. It increases brand engagement by encouraging conversation and community building, allowing businesses to interact with their customers in a more personal way. When customers contribute their material on social media, user-generated content (UGC) may significantly increase brand recognition and reach. Overall, using user-generated content into marketing initiatives promotes authenticity, builds consumer connections, and drives up conversion rates.

**2.9. Transparency in Marketing:** Transparency in marketing is openly disclosing information about a company's products, operations, and values to customers. Customers are increasingly seeking honesty and authenticity from the companies with which they do business, therefore this technique promotes trust and credibility. Companies may develop consumer relationships by being transparent about their ingredients, sourcing, pricing, and business processes,

therefore encouraging loyalty and advocacy. Furthermore, openness can assist to prevent unfavorable remarks and reactions, particularly in an age where customers are quick to share their opinions online. Finally, embracing transparency in marketing boosts brand reputation while also satisfying customer expectations for ethical and responsible business practices.

**2.10. Neurological Basis of Brand Preference:** Understanding how the brain reacts to brands and marketing stimuli is critical for establishing the neurological basis of brand choice. Neuromarketing research has shown that when customers connect with businesses, several brain regions are activated, including those associated with emotions, memories, and rewards. Emotional connections generated by branding may lead to positive associations and preferences, which frequently influence purchasing decisions unconsciously. These brain functions are influenced by familiarity, sensory experiences, and narrative, which leads clients to prefer familiar businesses. Finally, knowing the neurological basis of brand choice helps marketers to develop tactics that significantly engage customers, resulting in improved brand loyalty and revenue.

### III. RESEARCH METHODOLOGY

This study employs a **secondary research approach**, utilizing existing literature to analyze the relationship between neuroscience and marketing. The research draws upon peer-reviewed journal articles, books, and industry reports to examine how neuromarketing principles influence consumer behavior and branding strategies.

The methodology involves a **systematic review** of relevant sources published after 2010, ensuring an up-to-date analysis of neuroscientific advancements in marketing. Key areas of focus include consumer decision-making, emotional engagement, brand recall, and ethical concerns related to neuromarketing. By synthesizing insights from diverse studies, the paper provides a comprehensive overview of the role of brain science in shaping modern branding practices. Limitations of this methodology include potential biases within the selected sources and the lack of primary empirical data. However, by relying on established research, this study ensures a well-supported and theoretically grounded discussion on neuromarketing's impact on consumer behavior.

### IV. CASE STUDY- LIQUID DEATH

**4.1. Background of Liquid Death:** Liquid Death Mountain Water, founded in 2017, has rapidly emerged as one of the most provocative and recognizable brands in the bottled water market. The company sells still and sparkling water, packaged in tallboy cans typically associated with beer, rather than the conventional plastic bottles used by most competitors. Its unique branding taps into a rebellious, anti-establishment image, contrasting sharply with the purist and health-focused messages that dominate the beverage industry. The brand's tagline, "Murder Your Thirst," and its skull-and-crossbones logo signal its alignment with extreme sports and countercultural movements, positioning Liquid Death as more of a lifestyle product than simply a source of hydration. Liquid Death's marketing strategy is characterized by an unapologetic embrace of dark humor and shock value. From its bold packaging to its over-the-top social media presence and viral video content, the brand has sought to differentiate itself by adopting a tone and aesthetic typically reserved for extreme sports or punk rock. This contrasts sharply with the traditional marketing of bottled water, which usually highlights purity, nature, and wellness. Instead, Liquid Death uses irreverence and humor, featuring marketing campaigns that align more with entertainment than traditional advertising.

**4.2. Marketing Philosophy and Goals:** Liquid Death's marketing campaigns are designed to evoke strong emotional responses, whether through humor, shock, or satire. By positioning itself as a brand that "kills" thirst most extremely and entertainingly possible, it cultivates an identity that resonates with a particular consumer demographic—those who seek something disruptive and different from mainstream brands. Their goal is to align the brand with a rebellious lifestyle, creating a sense of belonging and identity among their target audience. According to the company's CEO, Mike Cessario, Liquid Death is more focused on creating cultural moments and entertainment than just selling water. This marketing approach is deeply tied to **neuroscientific principles** that highlight the role of emotional engagement in driving consumer behavior. Research has shown that emotional responses are key to memory formation and brand recall (McGaugh, 2000). By utilizing shock tactics, humorous ads, and controversial content, Liquid Death ensures that its brand stands out in the crowded beverage market. This strategy is supported by findings in consumer neuroscience, which indicate that **emotional arousal** enhances memory consolidation, making emotionally provocative ads more likely to be remembered (Kazmi et al., 2019).

**4.3. Emotional Engagement and Consumer Behavior:** The use of shocking imagery and provocative content in Liquid Death's advertising plays directly into the neuroscience of **emotional arousal and memory**. Studies have shown that emotionally charged experiences activate the **amygdala**, which plays a critical role in enhancing memory consolidation (Eichenbaum, 1994; McGaugh, 2000). For instance, Liquid Death's campaign featuring demonic characters and horror-themed visuals taps into emotional responses that consumers might not typically associate with a beverage product. These intense emotional experiences are more likely to stick with the audience, leading to **greater brand recall**. Moreover, Liquid Death's focus on humor aligns with findings from neuromarketing research that show humor in advertising increases consumer engagement and strengthens positive emotional associations (Kazmi et al., 2019). By creating entertaining, shareable content that doesn't just sell a product but also provides a humorous narrative, the brand activates the brain's **reward**

pathways, creating a sense of pleasure and satisfaction in the consumer. This emotional reward system, particularly linked to the release of **dopamine**, reinforces positive associations with the brand, thereby encouraging consumer loyalty.

**4.4. Disruption Through Novelty:** Liquid Death's ability to capture attention and disrupt norms can be attributed to its use of **novelty** as a core marketing tactic. Neuroscientific research suggests that novel stimuli—those that deviate from expectation—are more likely to engage consumers and capture their attention (Plassmann et al., 2007; Javor et al., 2013). By presenting itself as an extreme, edgy brand in an otherwise health-oriented product category, Liquid Death creates a **cognitive dissonance** that forces consumers to take notice. This triggers the brain's **novelty detection system**, leading to enhanced engagement and curiosity about the brand (Milosavljevic et al., 2012).

In contrast to traditional marketing strategies for bottled water that emphasize wellness and sustainability, Liquid Death uses punk-inspired designs and dramatic taglines like "Death to Plastic" to stand out. This approach not only captures attention but also aligns with **tribal branding**, where consumers align their identities with a brand that represents their own values and cultural preferences (Camarrone & van Hulle, 2019). The **social identity theory** supports the idea that consumers are more likely to form emotional bonds with brands that reflect their sense of self. For Liquid Death, this means appealing to those who reject the norm and seek a brand that expresses their individuality.

**4.5. Branding and Community Building:** Liquid Death's success is not just a result of its provocative marketing but also its ability to create a community around its brand. Through social media engagement and user-generated content, the brand fosters a sense of belonging among its consumers. This taps into the **social brain hypothesis**, which posits that humans are neurologically wired to seek connections and group membership. By promoting the brand as a symbol of rebellion and individuality, Liquid Death leverages the **tribal nature** of its consumers to deepen brand loyalty. This community aspect also links back to **neural mechanisms of reward**. As consumers engage with the brand online—sharing memes, wearing merchandise, or participating in viral challenges—they receive positive feedback from the community. This social validation triggers **dopamine release**, reinforcing both their engagement with the brand and their loyalty to its identity (Kazmi et al., 2019).

## V. NEUROSCIENTIFIC ANALYSIS OF LIQUID DEATH'S MARKETING STRATEGIES

**5.1. Attention Capture Through Shock and Humor:** Liquid Death's marketing strategies are designed to immediately seize attention by employing shock tactics and dark humor, which aligns with findings in consumer neuroscience about the role of **attention-capturing stimuli**. Neuroscientific research has established that **novel and unexpected stimuli** activate brain regions associated with heightened attention and curiosity, such as the **ventral striatum** and **anterior cingulate cortex** (Plassmann et al., 2007). These brain regions are crucial for novelty detection and reward processing, leading to an increased likelihood of remembering and engaging with the content (Milosavljevic et al., 2012). By using provocative visuals—such as demonic figures or violent depictions of water consumption—Liquid Death stimulates the brain's **fight-or-flight response**, which is triggered by unexpected or shocking stimuli. This generates heightened emotional arousal, as indicated by increased **beta wave activity** in EEG studies, where consumers show increased focus and attention when exposed to emotionally provocative content (Shaw & Bagozzi, 2018). This approach is particularly effective in a crowded market like the bottled water industry, where capturing attention is critical to cutting through the noise of conventional health and wellness messaging.

**5.2. Emotional Arousal and Memory Formation:** Research has consistently shown that **emotional arousal plays a pivotal role in memory consolidation**, as emotional experiences are more likely to be encoded in long-term memory due to the activation of the **amygdala** and **hippocampus** (McGaugh, 2000; Eichenbaum, 1994). Liquid Death leverages this by creating emotionally charged, highly stimulating content that engages the audience on a visceral level. For example, their "murder your thirst" slogan, combined with violent and humorous visuals, elicits strong emotional reactions, which neuroscientific research suggests leads to improved memory retention (Hasnain Alam Kazmi et al., 2019). Liquid Death's campaigns often use humor to enhance this emotional engagement, further amplifying memory retention. Humor in advertising has been found to stimulate the brain's **reward pathways**, particularly through the release of **dopamine**, which strengthens the association between the brand and a pleasurable experience (Kazmi et al., 2019). By consistently using humor across their advertisements, Liquid Death creates a positive emotional environment, reinforcing their brand message through both conscious and unconscious processes.

**5.3. Reward Pathways and Brand Loyalty:** Neuromarketing research highlights that **dopaminergic reward systems** are key to fostering consumer loyalty, especially when brands provide repeated, pleasurable experiences. Liquid Death's reliance on dark humor not only captures attention but also triggers the brain's reward centers, such as the **nucleus accumbens** and the **ventral tegmental area**. These regions are involved in the processing of rewards and pleasure, and when activated, they reinforce the likelihood of repeated engagement with the brand (Deppe et al., 2005). This is particularly evident in Liquid Death's use of recurring themes in their advertisements, creating **expectation and reward loops** for consumers. For example, their satirical and over-the-top content, such as "killing thirst" in violent, exaggerated ways, becomes a recognizable and anticipated part of their brand identity. This **repetition of humor and shock** provides consumers with an emotional payoff, reinforcing brand loyalty through the **positive reinforcement** that dopamine provides (Shaw & Bagozzi, 2018).

**5.4. Neurological Basis for Novelty and Disruption:** Liquid Death's marketing is built on the foundation of **novelty**, a principle that is deeply rooted in neuroscience. Novel stimuli, which differ significantly from what is expected, activate brain regions such as the **prefrontal cortex** and the **dopaminergic system**, which are responsible for learning and reward anticipation (Plassmann & Yoon, 2015). Liquid Death's campaigns break away from the typical health-conscious, serene imagery of the bottled water market, instead opting for a rebellious, death-themed aesthetic that grabs attention precisely because it defies expectation. As highlighted in research by Javor et al. (2013), **novelty in advertising** not only increases attention but also creates a lasting impact by enhancing **dopamine-driven reward responses**. This approach aligns with the **dopaminergic novelty hypothesis**, which states that novel stimuli produce increased dopamine activity in the brain, making them more likely to be remembered and revisited (Milosavljevic et al., 2012). Liquid Death's provocative campaigns thus engage the **reward-learning system**, creating strong associations between the brand and an entertaining, novel experience.

**5.5. The Role of Identity and Community:** Liquid Death's marketing also taps into **social and identity-based neuroscience**, where consumers form strong emotional bonds with brands that align with their identities and values. The concept of **tribal branding**, as discussed by Camarrone & van Hulle (2019), suggests that consumers are neurologically wired to seek community and belonging through shared brand experiences. Liquid Death's irreverent, anti-establishment messaging appeals to consumers who identify with rebellious, countercultural values, creating a **sense of belonging** within a community of like-minded individuals. This sense of identity is reinforced through the brand's social media presence, where consumers are encouraged to share content and interact with the brand on a personal level. Neuroscience research suggests that **social validation**, especially through **online communities**, activates the brain's **reward system**, releasing dopamine and further cementing loyalty to the brand (Deppe et al., 2005). By fostering a sense of tribe around its provocative messaging, Liquid Death builds a **neurologically driven connection** between consumer identity and brand loyalty.

## VI. SOCIAL IDENTITY AND CULTURAL DISRUPTION:

**6.1. Brand Identity Formation:** One of the most critical aspects of Liquid Death's marketing success is its ability to create a strong, distinct brand identity that appeals to a specific consumer demographic. Liquid Death markets itself not merely as a water brand but as a cultural statement, leveraging rebellion and countercultural imagery to set itself apart from competitors. This branding aligns closely with neuroscientific theories of **identity formation and emotional connection** in consumer behavior. According to Shaw & Bagozzi (2018), consumers often form deep emotional bonds with brands that they perceive as reflecting their identities and values. These implicit connections are rooted in **neural mechanisms of emotional processing** and social bonding. Liquid Death's marketing aligns with the theory of **tribal branding**, where brands cultivate communities that align with a shared set of beliefs or lifestyles (Camarrone & van Hulle, 2019). By positioning themselves as the "rebels" of the bottled water industry, Liquid Death creates a brand identity that resonates with individuals who reject mainstream health-oriented marketing and prefer an edgier, more rebellious aesthetic. This appeals to a demographic that seeks distinction through brand association, enhancing the emotional connection between consumer and brand. The use of **provocative, often shocking imagery** taps into these identity-driven connections, allowing consumers to feel a sense of belonging to a community that shares their values of anti-conformity and rebellion.

**6.2. Neuroscience of Social Identity and Group Belonging:** The neuroscience behind social identity suggests that humans are inherently wired to seek belonging within social groups, which is reinforced through shared values, symbols, and rituals. Liquid Death's marketing taps into this **social brain network** by building a community of consumers who identify with its rebellious, anti-establishment messaging. Neurological studies have shown that the **medial prefrontal cortex** and the **temporal-parietal junction** are activated when individuals process information related to their social identity (Deppe et al., 2005). This means that brands that reflect a consumer's sense of self and identity can create stronger emotional bonds, as consumers integrate the brand into their self-concept.

Liquid Death amplifies this connection through its active presence on social media, where the brand engages directly with consumers and fosters user-generated content. Consumers are encouraged to share photos, memes, and videos that reflect the brand's irreverent tone, creating a sense of shared experience and group identity. Research indicates that such **social validation** triggers **dopaminergic pathways**, reinforcing positive associations with the brand and encouraging repeat interactions (Hasnain Alam Kazmi et al., 2019).

**6.3. Cultural Disruption as a Branding Strategy:** Liquid Death's marketing also functions as a form of **cultural disruption**, where the brand intentionally subverts traditional norms within its industry to differentiate itself. In a market dominated by wellness-driven, environmentally friendly messaging, Liquid Death stands out by embracing an aggressive, edgy tone that borders on satire. According to Javor et al. (2013), **cultural disruption** is a powerful tool in marketing because it triggers a sense of novelty and curiosity in consumers. This novelty activates the **dopaminergic reward system**, particularly in the **ventral striatum**, making disruptive brands more memorable and engaging.

By positioning itself as a brand that breaks away from the conventions of the bottled water industry, Liquid Death appeals to consumers who are drawn to disruption and non-conformity. Its slogan, "Murder Your Thirst," combined with a design that resembles an energy drink or beer can, creates cognitive dissonance in the consumer's mind. This dissonance forces consumers to re-evaluate their expectations of the category, creating a **novel, attention-capturing experience** (Milosavljevic et al., 2012).

**6.4. Implicit Emotional Associations and Brand Loyalty:** Implicit emotional associations are a critical part of the neuroscience behind brand loyalty. Research suggests that emotional responses to a brand are often subconscious, driven by the



brain's **limbic system**, which processes emotional stimuli and regulates long-term memory formation (Eichenbaum, 1994). Liquid Death's consistent use of dark humor, violent imagery, and rebellious messaging creates strong implicit associations that consumers may not consciously recognize but which deeply influence their perception of the brand. These implicit associations form through repeated exposure to emotionally charged stimuli, building a durable emotional bond with the consumer. According to Reimann et al. (2012), **emotionally provocative branding** can be particularly effective in fostering loyalty, as it bypasses the rational decision-making processes and speaks directly to the emotional centers of the brain. By continually pushing boundaries with their campaigns, Liquid Death ensures that their brand remains top of mind, leveraging **emotional resonance** to foster long-term loyalty. The ability of the brand to evoke strong feelings—whether shock, humor, or amusement—anchors the brand in the consumer's memory, contributing to a strong sense of attachment.

**6.5. Creating a Subculture Through Marketing:** Liquid Death has effectively created a subculture around its brand, one that rejects the traditional ideals of health and wellness marketing in favor of an edgier, punk-inspired lifestyle. This subculture is reinforced through its marketing campaigns, which often feature extreme sports athletes, punk rock aesthetics, and over-the-top humor. Neuroscience research on **group identity and bonding** suggests that shared experiences and values play a crucial role in strengthening emotional ties to a brand (Shaw & Bagozzi, 2018). By positioning itself as a brand for non-conformists, Liquid Death builds a loyal consumer base that sees the brand as a reflection of its own identity. The brand's success in creating a subculture can also be linked to the **dopamine-driven rewards** of social validation. When consumers engage with Liquid Death on social media or wear branded merchandise, they receive positive feedback from both the brand and their peers, which strengthens their attachment to the brand. This social reinforcement activates the brain's **reward pathways**, encouraging further engagement and loyalty (Camarrone & van Hulle, 2019).

## VII. NEUROMARKETING TOOLS USED BY LIQUID DEATH:

Liquid Death's marketing approach leverages several principles from **neuromarketing**, which involves using neuroscience tools to analyze and predict consumer behavior. While the brand does not explicitly disclose the use of specific neuromarketing tools in its campaigns, it is possible to infer how various neuromarketing techniques can be applied to optimize its strategies. These tools include **EEG (Electroencephalography)**, **fMRI (Functional Magnetic Resonance Imaging)**, **eye tracking**, and **biometric analysis**—all of which are commonly used in consumer neuroscience to gauge emotional reactions, attention, and decision-making processes.

**7.1. EEG (Electroencephalography):** EEG is widely used in neuromarketing to measure electrical activity in the brain in response to marketing stimuli. By using EEG, companies can track changes in **brainwave patterns** as consumers view advertisements or interact with a product. Research shows that higher **beta wave activity** correlates with heightened attention and engagement, while **alpha waves** are linked to states of relaxation and positive emotional processing (Shaw & Bagozzi, 2018). In Liquid Death's case, the brand's shocking and humorous content is likely to elicit strong reactions from viewers. EEG could be used to measure how consumers react to their provocative advertisements, with a particular focus on **emotional arousal and attention levels**. For example, the brand's graphic visuals and dark humor likely generate significant emotional engagement, leading to spikes in **beta activity**, indicating focused attention and heightened emotional response. This data could be used to optimize ad placements and content, ensuring that the most engaging elements are highlighted.

**7.2. fMRI (Functional Magnetic Resonance Imaging):** While EEG provides insights into real-time brain activity, **fMRI** offers a more detailed look at which specific brain regions are activated by marketing stimuli. fMRI measures blood flow in the brain to identify areas that are active during decision-making, emotional processing, and memory formation. In consumer neuroscience, fMRI has been used to explore how **brand preferences**, **emotional responses**, and **reward pathways** are activated by certain products or advertisements (Plassmann & Yoon, 2015).

Liquid Death's campaigns are crafted to provoke emotional reactions and build strong brand loyalty. Through fMRI scans, researchers could study how Liquid Death's rebellious messaging affects the **amygdala** (associated with emotional arousal), the **nucleus accumbens** (linked to reward), and the **hippocampus** (responsible for memory formation). The strong, positive reinforcement created by the brand's humor and bold identity may lead to activation in these brain regions, indicating that the brand's message is not only being noticed but is also creating a lasting impact on consumers' emotional memory.

**7.3. Eye Tracking:** Eye-tracking technology is another powerful tool in neuromarketing, providing insights into **visual attention** by measuring where and how long a person looks at specific elements of an advertisement. Liquid Death's highly visual branding, including striking can designs and provocative advertisements, is designed to stand out. Eye-tracking could help Liquid Death optimize the layout of their ads and packaging, ensuring that the most attention-grabbing elements are placed in the right locations. For example, in a print ad or video campaign, eye-tracking data could reveal whether consumers focus on key branding elements such as the logo, the tagline "Murder Your Thirst," or the imagery of the skull motif. By understanding where consumers' attention naturally gravitates, Liquid Death could refine its visuals to enhance brand recognition and retention.

**7.4. Biometric Analysis:** Biometric analysis, which measures physiological responses like **heart rate**, **skin conductance**, and **facial expressions**, is often used in neuromarketing to track emotional responses. This method allows marketers to understand the **emotional intensity** of consumer reactions in real-time. By analyzing biometric data, Liquid Death could assess how different segments of its audience react emotionally to various aspects of its advertising. Given that Liquid Death's marketing often employs shock and humor, biometric data could be used to evaluate the **arousal levels**



triggered by specific content. For instance, spikes in heart rate or skin conductance might indicate moments of intense emotional engagement, such as when a particularly graphic or humorous visual is displayed. These insights would help the brand optimize its content to evoke the desired emotional response, ensuring that consumers remain engaged throughout the campaign.

**7.5. Facial Coding:** Facial coding is another neuromarketing tool that analyzes **micro-expressions** to assess emotional responses. Since Liquid Death's advertisements rely heavily on humor and shock value, facial coding could be used to monitor whether consumers' facial expressions show amusement, surprise, or even discomfort—each of which provides insight into how the content is being perceived emotionally.

This method would allow Liquid Death to fine-tune its humor-based campaigns by identifying which elements generate the most positive reactions, such as smiles or laughter. Conversely, any expressions of confusion or displeasure could inform adjustments to ensure the humor resonates with a wider audience without alienating them.

## VIII. ETHICAL CONSIDERATIONS

The rise of **neuromarketing**—the application of neuroscience to marketing strategies—raises a number of ethical concerns, particularly around issues of manipulation, transparency, and consumer autonomy. As brands like Liquid Death employ unconventional and emotionally charged marketing tactics that leverage neuromarketing insights, these concerns become especially pertinent. The following sections address the key ethical considerations in the context of neuromarketing, focusing on potential manipulation, informed consent, privacy, and the broader societal impact.

**8.1. Potential for Manipulation:** One of the primary ethical concerns in neuromarketing is the potential for **manipulation of consumers** through the use of subconscious triggers. Neuromarketing research shows that **emotional responses, attention, and decision-making** can be significantly influenced by carefully designed marketing stimuli (Javor et al., 2013). This raises concerns about the extent to which brands like Liquid Death may be exploiting **non-conscious processes** to shape consumer preferences and drive purchases.

Liquid Death's shock-based marketing approach is designed to evoke strong emotional reactions, often bypassing rational decision-making processes by targeting the brain's **limbic system**, responsible for emotions and memories (Hasnain Alam Kazmi et al., 2019). The ethical question arises as to whether this type of marketing is **manipulative**, as consumers may be influenced in ways they are not fully aware of, potentially leading them to make decisions that are not in their best interests.

**8.2. Informed Consent and Autonomy:** Another significant ethical issue relates to **informed consent**. In traditional neuromarketing studies, participants voluntarily submit to EEG, fMRI, or eye-tracking analysis, and they are aware of the purpose of these tests. However, when neuromarketing insights are applied to large-scale advertising, consumers are often unaware that their brain's emotional and cognitive responses are being **deliberately targeted**. This lack of awareness raises concerns about **autonomy**—the ability of consumers to make free and informed choices about their purchasing decisions (Shaw & Bagozzi, 2018). In the case of Liquid Death, the brand's edgy, rebellious aesthetic might appear transparent in its shock value, but the underlying use of **emotional manipulation** can still limit consumer autonomy. When consumers are bombarded with emotionally provocative content, their ability to make **rational decisions** may be compromised, which poses a challenge to ethical marketing practices.

**8.3. Privacy Concerns:** Privacy is another critical concern in neuromarketing, particularly when it involves tracking consumers' emotional responses, attention patterns, and purchasing behavior. With the increasing use of biometric tools like **eye-tracking** and **facial coding** to assess consumer reactions in real-time, there is a risk that personal data—particularly **emotional and cognitive data**—may be collected without consumers' explicit consent or understanding of how it will be used (Plassmann & Yoon, 2015). Although Liquid Death's public-facing marketing does not explicitly involve the use of biometric tracking, the broader neuromarketing industry raises important questions about how **data collection** is handled. Ensuring that companies transparently disclose how consumer data is used and stored is a key ethical requirement. Failing to do so risks violating consumer **privacy** and may undermine trust in both the brand and the marketing industry at large.

**8.4. Targeting Vulnerable Populations:** A further ethical issue in neuromarketing involves the targeting of **vulnerable populations**, such as children or individuals with cognitive impairments, who may be more susceptible to emotional manipulation. Research indicates that younger audiences, in particular, are more likely to be influenced by marketing that taps into **emotional and social rewards** (Deppe et al., 2005). Brands that use shock-based, emotionally provocative content, like Liquid Death, must consider the potential impact on these groups, as they may not fully understand the persuasive techniques being used. The ethical principle of **non-maleficence**—the obligation to avoid causing harm—suggests that marketers have a responsibility to ensure that their campaigns do not exploit **cognitive vulnerabilities**. Liquid Death's marketing may be seen as problematic if it disproportionately targets younger consumers who are drawn to its rebellious and edgy tone but may lack the cognitive maturity to critically evaluate the messages they receive.

**8.5. Transparency and Honesty in Marketing:** Lastly, transparency is an essential ethical consideration. In an age where consumers are increasingly aware of how brands try to influence their behavior, there is a growing demand for **honesty and transparency** in marketing. Brands that use neuromarketing techniques should strive to maintain an open dialogue about their methods and intentions. **Liquid Death**, with its bold and unapologetic branding, may already embrace a level of transparency in how it presents itself as a disruptive force. However, the ethical challenge lies in being fully transparent about the **psychological techniques** being employed, especially those that are based on subconscious triggers.

Failing to provide sufficient transparency can lead to **consumer distrust** and potential backlash. By being more open about how neuroscience is used to shape their marketing campaigns, Liquid Death and similar brands can address concerns about manipulation while maintaining their **authenticity** and consumer trust.

## IX. FINDINGS

The case of Liquid Death illustrates how **neuromarketing principles** can be harnessed to create an impactful, unconventional brand identity that not only captures attention but also deeply engages consumers on an emotional level. Throughout this research, the integration of **neuroscience and marketing** has proven to be an effective approach to understanding how consumers respond to provocative branding, emotional engagement, and disruptive marketing strategies.

**9.1. Neuromarketing's Role in Driving Engagement and Loyalty:** One of the primary insights gained from Liquid Death's marketing is the effective use of **emotional arousal** and **novelty** to influence consumer behavior. Neuroscientific research demonstrates that emotional stimuli are crucial in forming memories and driving consumer engagement. As highlighted by **McGaugh (2000)**, emotional experiences are more easily encoded into long-term memory due to the activation of the **amygdala**, making emotionally charged marketing content more likely to be remembered. Liquid Death's shock-value campaigns, with their dark humor and rebellious imagery, trigger emotional reactions that strengthen **brand recall** and engagement. This strategy aligns with the findings of **Plassmann et al. (2007)**, who underscore that strong emotional stimuli activate reward systems in the brain, making consumers more likely to form positive associations with the brand. Furthermore, the repetitive use of provocative content strengthens **consumer loyalty** by creating positive emotional rewards. Research by **Kazmi et al. (2019)** shows that consistent exposure to emotionally resonant advertising activates the **dopaminergic reward pathways**, leading to increased consumer attachment to the brand. Liquid Death's consistent tone, from its shocking ads to its humorous social media presence, ensures that consumers experience these emotional rewards repeatedly, reinforcing brand loyalty over time.

**9.2. Storytelling and Community Building as Powerful Tools:** Another critical element in Liquid Death's marketing success is its use of **storytelling** and **community building**. As discussed in the literature, storytelling enables brands to communicate their identity and values in a way that resonates emotionally with consumers. Research by **Shaw & Bagozzi (2018)** shows that storytelling in marketing activates both **cognitive and emotional centers** of the brain, making the brand's message more memorable and engaging. Liquid Death's storytelling goes beyond simply selling water; it sells a lifestyle of rebellion and non-conformity. This narrative resonates deeply with its target audience, fostering a strong sense of community and identity around the brand.

The role of **user-generated content (UGC)** also contributes to Liquid Death's marketing effectiveness. By encouraging its audience to participate in the brand narrative—through sharing memes, creating content, and engaging on social media—the brand taps into the **social validation** aspect of neuromarketing. This strategy activates the brain's reward system by providing consumers with a sense of belonging and community recognition, further solidifying their emotional attachment to the brand (Camarrone & van Hulle, 2019). UGC also amplifies the brand's reach and authenticity, as consumers trust peer-generated content more than traditional advertisements.

**9.3. Ethical Considerations in Liquid Death's Neuromarketing Approach:** Despite its success, Liquid Death's marketing strategy also raises significant **ethical concerns**. The brand's use of **shock tactics** and **emotional manipulation** prompts questions about the line between effective marketing and manipulation. **Javor et al. (2013)** point out that neuromarketing can blur ethical boundaries, especially when marketing stimuli are designed to bypass conscious decision-making processes by appealing to consumers' subconscious emotions. Liquid Death's edgy marketing may exploit these non-conscious emotional triggers, raising concerns about the **autonomy** of consumer decision-making. Moreover, the brand's transparency is another key ethical issue. As consumers become increasingly aware of how brands influence behavior through neuromarketing, there is a growing demand for **transparency** in advertising practices. Liquid Death's overtly provocative marketing may come across as transparent, but the psychological mechanisms driving consumer responses are not always evident to the audience. Ensuring that brands remain open about their use of emotional manipulation is essential for maintaining **consumer trust** and avoiding backlash (Shaw & Bagozzi, 2018). Lastly, the potential for targeting **vulnerable populations**—such as younger consumers—adds an additional layer of ethical concern. Younger audiences are more impressionable and may not fully understand the persuasive techniques being used, raising questions about the brand's responsibility in safeguarding **cognitive vulnerabilities**. The use of emotional triggers without adequate transparency could lead to **unethical manipulation**, particularly among more susceptible consumer groups (Deppe et al., 2005).

**9.4. Impact of Neuromarketing Tools:** Liquid Death's marketing effectiveness can also be analyzed through the lens of **neuromarketing tools** such as **EEG**, **fMRI**, and **eye tracking**. These tools provide insights into how consumers respond to the brand's disruptive content by measuring **attention**, **emotional arousal**, and **memory retention**. For instance, **EEG studies** could reveal heightened **beta wave activity**, indicating focused attention and emotional engagement with the brand's provocative ads (Shaw & Bagozzi, 2018). Similarly, **fMRI** could demonstrate how the brand's content activates the **reward systems** and **emotional processing centers** of the brain, reinforcing positive associations and brand loyalty. These tools allow brands like Liquid Death to refine their marketing strategies by identifying which elements of their content resonate most strongly with consumers. This real-time feedback enables the optimization of ad campaigns to maximize engagement and emotional impact.

## X. RECOMMENDATIONS

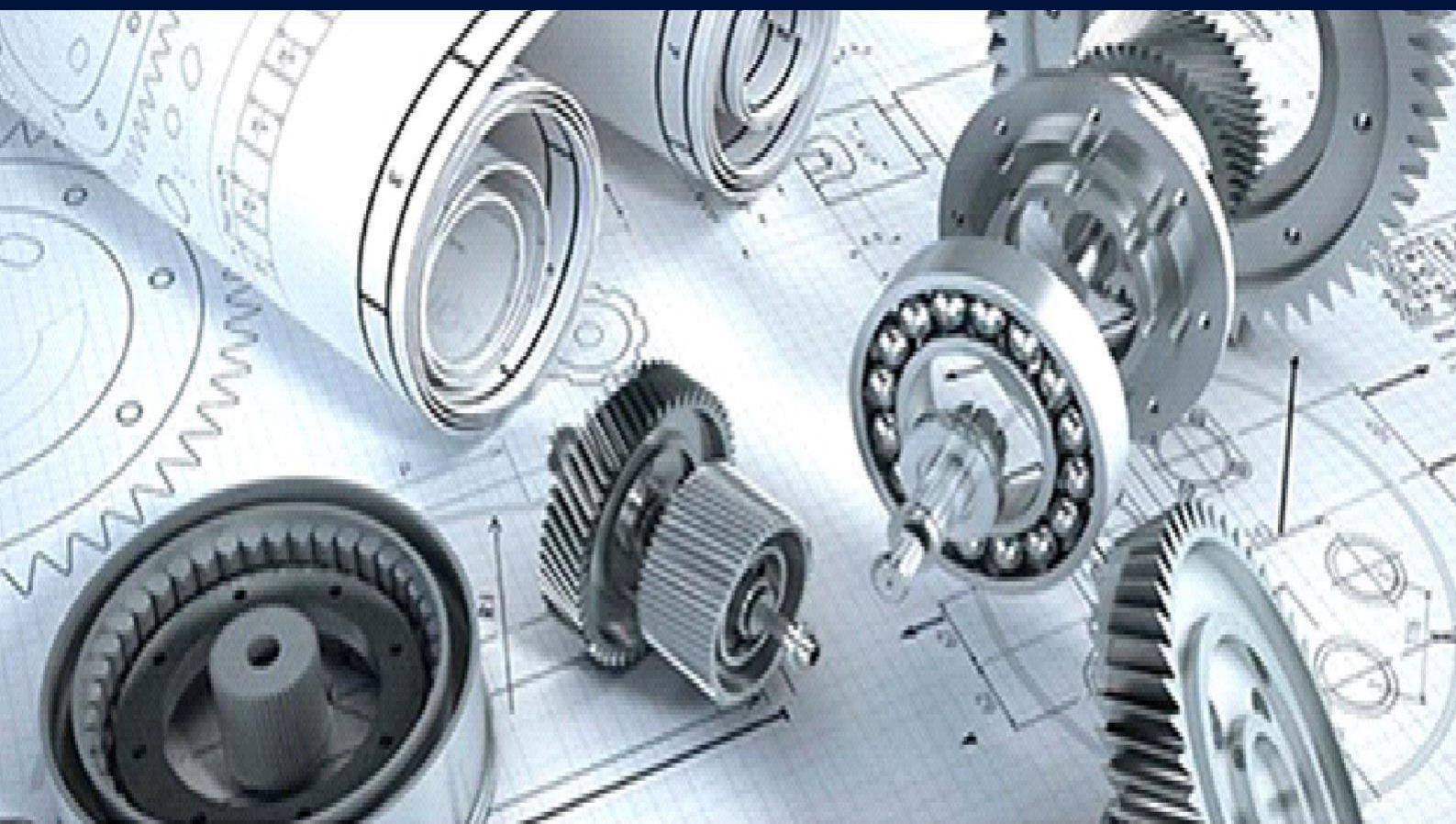
The intersection of neuroscience and marketing has introduced transformative strategies that allow brands to engage consumers more deeply and effectively. Liquid Death serves as a compelling case study of how **neuromarketing principles**—including emotional arousal, attention capture, and storytelling—can be leveraged to create a distinct, disruptive brand identity. By utilizing **shock value**, **humor**, and **emotional storytelling**, the brand effectively taps into core cognitive processes such as memory formation and reward, which are critical in driving **consumer engagement** and **brand loyalty**. **Neuromarketing tools** like **EEG**, **fMRI**, and **eye-tracking** have the potential to further optimize these strategies by providing real-time insights into consumer behavior. These tools allow brands to measure **emotional responses** and **attention levels**, ensuring that marketing content resonates on both conscious and subconscious levels. As shown through Liquid Death's use of provocative and attention-grabbing content, effective branding hinges on creating an emotional experience that sticks with consumers long after their initial exposure.

However, the application of neuromarketing also raises **ethical considerations**. Concerns about **manipulation**, **autonomy**, and the potential targeting of vulnerable populations highlight the need for marketers to strike a balance between engaging consumers and respecting their cognitive boundaries. Liquid Death's approach, while successful, prompts a critical conversation about the **responsibility** that brands bear when using neuroscience to influence consumer behavior. In conclusion, as brands continue to explore the power of **neuromarketing**, they must remain mindful of the ethical implications that accompany this powerful tool. **Transparency**, **informed consent**, and **responsible targeting** will be essential for ensuring that neuromarketing strategies remain ethical while still maximizing their effectiveness. Liquid Death's bold and innovative marketing tactics provide an excellent example of the potential for neuroscience to shape branding strategies, but they also underscore the importance of ethical considerations in the evolving landscape of consumer marketing.

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