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The application of consumer neuroscience tools on social media

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Abstract: Consumer neuroscience facilitates the analysis of unconscious user responses to social media content. Tools such as electroencephalography (EEG) and eye-tracking are instrumental in identifying content types that activate the brain's reward system, thereby enhancing user engagement. Neuromarketing, which focuses on subconscious triggers influencing consumer behavior, is increasingly vital for optimizing marketing strategies. This article conducts a systematic literature review to explore the primary tools of consumer neuroscience and their growing applications in advertising and user experience optimization on social media.

Keywords: Electroencephalography (EEG),Eye Tracking (ET),Functional Magnetic Resonance Imaging (fMRI), Galvanic Skin Response (GSR), Neuromarketing, Social media marketing.

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1 Introduction

Social media platforms provide vast amounts of data on user behavior, but traditional analyses often fail to capture the emotional and cognitive drivers behind consumer actions. Consumer neuroscience fills this gap by allowing marketers to analyze how consumers unconsciously respond to different types of content, whether it's an image, video, or text post (Damasio, 2011). Tools such as EEG and eye-tracking enable marketers to identify the most effective types of content that trigger the consumer's reward system, thus leading to greater engagement and brand loyalty.

For instance, research has shown that personalized content activates brain regions such as the ventral striatum and orbitofrontal cortex, which are associated with reward processes and decision-making (Knutson et al., 2007). By leveraging this knowledge, marketers can tailor their social media strategies to provide consumers with content that not only meets their needs but also triggers a positive emotional response, thereby fostering greater loyalty and stronger engagement (Venkatraman et al., 2015).

Neuromarketing, by focusing on understanding the subconscious triggers influencing consumer behavior, has become a valuable tool for social media marketing. Ohme et al. (2010) demonstrated the power of using EEG and facial recognition to evaluate real-time emotional reactions to advertisements on social media platforms. This research revealed that emotionally engaging content, particularly videos, tended to produce stronger neural activity in brain regions associated with memory and decision-making.

The research by Venkatraman et al. (2015) showed that visually appealing content activated the brain's visual cortex and areas involved in emotional processing, such as the amygdala. This activation directly correlates with users' intentions to interact with the content, whether through likes, shares, or comments. As a result, marketers increasingly use insights from neuromarketing to design social media campaigns that are both visually captivating and emotionally resonant.

Neuromarketing research also sheds light on the timing and frequency of social media posts. A study by Damasio (2011) revealed that consumers are more likely to respond positively to social media posts that are aligned with their emotional states throughout the day. By tracking user behavior patterns and emotional responses, marketers can determine the optimal times to publish content that resonates with their audience's mood.

- **Research Methodology**

The methodology adopted in this article is based on a systematic literature review aimed at examining the tools and characteristics of consumer neuroscience applied to social media. This approach was chosen to synthesize existing knowledge and identify gaps in current research (Snyder, 2019). To ensure comprehensive coverage, three primary academic databases were utilized: Google Scholar, Scopus, and Web of Science. These platforms were selected due to their wide accessibility and the diversity of indexed articles, covering a broad range of disciplines relevant to consumer neuroscience in the context of social media (Falagas et al., 2008).

The research was conducted using specific keywords such as "consumer neuroscience," "neuromarketing tools," "social media marketing," and "consumer behavior on social media." The inclusion criteria consisted of articles published in peer-reviewed academic journals between 2000 and 2023, written in English or French, and directly addressing the neuroscientific tools used to study consumer behavior on social media platforms (Gough et al., 2012). The selected articles were then categorized based on the types of tools used, such as EEG and fMRI, as well as their application areas, including advertising, branding, and user experience optimization on social media (Moher et al., 2009).

This methodological approach allowed for the construction of a robust database for an in-depth analysis of current practices in consumer neuroscience strategies and tools applied to social media. The present article explores the tools of consumer neuroscience by first categorizing them into different groups, followed by an analysis of their growing popularity in the field of social media marketing. The distinctive characteristics of these tools will also be examined in detail to provide a better understanding of their utility. Subsequently, the focus will be on their primary applications in social media marketing, particularly in areas such as advertising, branding, word of months

and enhancing online user experiences. Finally, an in-depth discussion will highlight the current limitations of these technologies and offer future perspectives on their evolution and potential within marketing strategies.

2 Application of neuromarketing on social Media

2.1 Neuromarketing and social media influencers

Influencers play a crucial role in social media marketing, and insights from neuromarketing can enhance the effectiveness of influencer campaigns. Influencers are perceived as trusted figures, with their recommendations often holding more weight than traditional advertisements. Neuromarketing tools, such as EEG and fMRI, allow marketers to better understand how consumers subconsciously react to influencer content.

When consumers interact with their favorite influencers, the brain regions responsible for analytical processes deactivate, while areas associated with emotional processing become active (Venkatraman et al., 2015). This suggests that consumers are more inclined to engage with influencer content on an emotional rather than rational level. Emotionally resonant content shared by influencers can trigger the brain's reward centers, making it more memorable and likely to be shared (Ohme et al., 2010).

Neuromarketing can help brands optimize their influencer marketing strategies by identifying the types of content that resonate most with consumers. For example, studies have shown that short videos and emotional stories capture more attention and generate positive emotional responses compared to static images or textual content. By using neuromarketing tools to analyze consumer reactions to different types of content, brands can design more effective influencer campaigns, thereby increasing engagement and conversions (Knutson et al., 2007).

2.2 The role of neuromarketing in optimizing advertising strategies on social Media

Unlike traditional advertising methods that primarily rely on explicit messages and demographic targeting, neuromarketing goes beyond observable data by analyzing the cognitive and emotional processes that influence the perception of advertisements.

By utilizing tools such as eye-tracking and electroencephalography (EEG), researchers can determine where consumers focus their attention and measure how long they interact with specific content. These technologies enable the optimization of both the visual and emotional elements of advertisements, maximizing their effectiveness and ensuring better consumer engagement.

2.2.1 Emotional responses and advertising engagement

Studies such as those by Ohme et al. (2010) show that advertisements eliciting positive emotions, measured through EEG, activate the left hemisphere of the brain, a region associated with satisfaction and pleasure. Conversely, ads that evoke negative emotions primarily stimulate the right hemisphere, which processes negative emotions. These findings help advertisers understand which types of content generate positive emotional responses and encourage stronger engagement with the advertisement (Journal of Economic Psychology, 31(5), 785-793).

Similarly, the work of Venkatraman et al. (2015) demonstrated that emotionally engaging advertisements trigger increased activation in brain areas linked to memory and decision-making, such as the amygdala and prefrontal cortex. This suggests that ads activating these regions not only enhance emotional engagement but also improve consumers' ability to retain information. This provides advertisements with a lasting effect, making them more effective in the long term.

2.2.2 Influence of advertisements on purchase decisions

A study conducted by Kenning et al. (2007) revealed that the activation of the ventral striatum, a region associated with the brain's reward system, is a strong predictor of purchase decisions following exposure to advertising stimuli. This implies that advertisements capable of stimulating this brain area can influence purchase decisions by enhancing the consumer's motivation to buy a product.

These findings highlight the importance of designing advertisements that not only capture attention but also evoke a positive emotional response and strengthen purchasing impulses.

2.2.3 Emotional attachment to brands and loyalty

Schaefer et al. (2006) found that advertisements for familiar brands activate brain regions associated with emotions and memory, such as the amygdala and hippocampus. The results show that consumers respond more favorably to advertisements for brands they are emotionally attached to, which in turn enhances brand loyalty and improves the effectiveness of advertising campaigns.

Moreover, this emotional connection with familiar brands not only strengthens consumer loyalty but also reduces price sensitivity. When consumers are emotionally attached to a brand, they are more likely to choose that brand over competitors, even if the alternatives offer lower prices. This emotional attachment can therefore be a critical factor in building long-term customer relationships, helping brands maintain a competitive advantage in increasingly crowded markets. By leveraging neuromarketing insights to deepen emotional bonds, brands can foster a more loyal and engaged customer base, driving repeat purchases and increasing lifetime value.

2.2.4 Application of neuromarketing on social media platforms

Neuromarketing allows advertisers to tap into consumers' cognitive and emotional responses, optimizing ad effectiveness across various social media platforms. Each platform has its unique dynamics, which provide different opportunities for applying neuromarketing principles. Here's how neuromarketing can be used effectively on major social media platforms:

- **Facebook**

  Facebook's vast user base and diverse content formats make it a prime platform for leveraging neuromarketing. Ads appear naturally in users' news feeds, reducing the likelihood of ad fatigue. Neuromarketing tools like **eye-tracking** help advertisers determine which parts of a video or image attract users' attention the fastest, while **EEG** (electroencephalography) can measure the

emotional engagement triggered by various ad elements.
Optimized Formats: Short-form video ads that evoke strong emotions tend to perform best. Ads that spark an immediate emotional response or tell a compelling story tend to be more memorable and shareable. The "reaction" feature on Facebook allows brands to gauge real-time emotional responses, adding an additional layer of consumer insight.
Insights for Brands: Brands can use **A/B testing** combined with neuromarketing insights to find the best-performing ad visuals, copy, and targeting strategies, improving their return on investment (ROI) significantly.

- **Instagram**

  As a highly visual platform, Instagram emphasizes aesthetically pleasing content, often centered around storytelling and personal experiences. Neuromarketing on Instagram focuses on understanding **visual impact** and **emotional engagement**. Ads that quickly trigger emotions through high-quality imagery or videos perform well.
  Optimized Formats: Instagram Stories and Reels are the ideal formats for short, dynamic, and emotionally engaging content. Studies show that users respond better to visually appealing, authentic posts, especially when presented in informal and relatable contexts. **EEG studies** can reveal which ad components spark joy or curiosity, helping brands fine-tune their visuals and narratives.
  Influencer Integration: Influencer marketing is strong on Instagram. Neuromarketing helps brands select influencers whose content creates emotional connections with their followers, enhancing brand trust and engagement.

- **LinkedIn**

  LinkedIn is a professional network, so advertising here needs to be informative and geared toward rational decision-making. However, neuromarketing shows that **emotion** still plays a key role, even in professional settings.
  Optimized Formats: Ads that combine educational value with a strong narrative drive higher engagement. **EEG studies** can identify how users emotionally react to thought leadership content, while eye-tracking can help pinpoint what parts of ads or articles users focus on first. Sponsored content, case studies, and webinars are particularly effective when they appeal to both emotional and rational decision-making processes.
  User Engagement: LinkedIn's decision-makers value authenticity, so neuromarketing helps brands strike a balance between providing valuable information and forming emotional connections with their professional audience.

- **TikTok**

  TikTok's short, viral video format demands immediate attention. The platform's highly interactive nature means that ads must be **emotionally engaging** from the first few seconds. Neuromarketing helps advertisers understand which video elements—such as music, facial expressions, or rapid visual changes—trigger **emotional engagement**.
  Optimized Formats: Quick, high-energy ads that use humor, surprise, or strong emotional

storytelling work well on TikTok. **EEG** and **eye-tracking** can be used to optimize the pacing and emotional tone of ads. For example, users often react more positively to authentic, user-generated content than to overly polished ads, which could come across as inauthentic on the platform.

Influencer and User Engagement: Given TikTok's strong reliance on influencers, brands can use neuromarketing to identify influencers whose content resonates emotionally with the audience. This enhances ad performance by aligning with the platform's authentic and community-driven culture.

- **Twitter**

  Twitter is a fast-paced platform where users scroll quickly through content, making **attention capture** crucial. Neuromarketing studies, particularly those involving **eye-tracking**, show that users spend very little time on individual tweets. Therefore, short, concise messaging that evokes an emotional reaction is key to standing out.

  Optimized Formats: Twitter ads must combine a sharp headline with emotionally resonant images or videos. Since text-based tweets are the norm, **emotionally charged language** and striking visuals or gifs can make ads more memorable. **EEG** data shows that emotions like **surprise** and **curiosity** work well in ads, drawing users into engaging with content further.

  Real-Time Engagement: Twitter's real-time nature makes it an excellent platform for leveraging neuromarketing insights in campaigns that align with current events or trending topics. Brands can use neuromarketing to understand which types of events or trends generate the most positive emotional responses, helping them craft real-time content that resonates.

- **YouTube**

  YouTube's format, heavily centered around video content, allows for a deeper level of engagement. Neuromarketing on YouTube often revolves around **emotional storytelling**, where longer-form content can take users on an emotional journey.

  Optimized Formats: Pre-roll ads and sponsored content that tell a story or evoke strong emotions can significantly improve ad recall and influence purchase decisions. Neuromarketing techniques, such as **fMRI** (functional magnetic resonance imaging), can help brands understand how specific ad narratives trigger emotional responses and memory retention. Eye-tracking also plays a role in optimizing **thumbnails** and video previews, which are essential for capturing user attention.

  Engagement Through Influencers: YouTube influencers or content creators often have a deep emotional connection with their subscribers. Brands can use neuromarketing insights to select influencers whose content elicits the desired emotional response, ensuring a more authentic and impactful campaign.

2.3 Neuromarketing and electronic Word-of-Mouth (eWOM)

Neuromarketing plays a crucial role in enhancing emotional engagement, which is particularly relevant in the context of electronic word-of-mouth (eWOM). Consumers are more inclined to share content that elicits a strong

emotional response, thereby increasing visibility and engagement on social media platforms. Neuromarketing tools such as EEG and eye-tracking provide valuable insights into the types of content most likely to trigger positive emotional responses, thus increasing the likelihood of content being shared on social networks (Ohme et al., 2010).

Research shows that consumers tend to reduce their analytical processing when interacting with their favorite brands on social media. This suggests they are more likely to engage with content that resonates emotionally rather than rationally (Venkatraman et al., 2015). By leveraging insights from neuromarketing, brands can create content that taps into the subconscious emotions of their audience, making it more memorable and shareable. Emotionally captivating content triggers a stronger affective connection with the audience, strengthening the brand relationship and increasing the likelihood that the content will be shared with other users.

2.3.1 Optimization of eWOM Strategies through neuromarketing

Neuromarketing also enables brands to optimize their eWOM strategies by identifying the types of content most likely to go viral. Studies have shown that content evoking emotions such as joy, surprise, or excitement is more frequently shared than purely informational content (Berger & Milkman, 2012). These strong emotions prompt consumers to share content not only because it is engaging but also because it triggers an intense emotional reaction, thereby strengthening their attachment to the brand.

A study by Berger and Milkman (2012) on viral sharing revealed that high-arousal emotions, such as awe or enthusiasm, increase the likelihood of sharing, whereas more passive or neutral emotions, such as sadness, tend to reduce the desire to share content. This underscores the importance for brands to craft advertising messages that not only inform but also elicit a strong emotional response, thus increasing the chances of viral sharing.

2.3.2 The importance of emotional resonance for viral success

Creating content that emotionally resonates with consumers is crucial for achieving viral success. Viral content is not just about accumulating large numbers of views or shares; it also involves deep emotional engagement that motivates consumers to interact more with the brand. Insights from neuromarketing help companies create advertisements that tap into these emotional responses, stimulating brain areas associated with reward and satisfaction (Kenning et al., 2007), thereby increasing the likelihood of content sharing on social media.

By optimizing emotional engagement, neuromarketing enables brands to better understand the emotional drivers that compel consumers to share content on social networks. Using tools like EEG and eye-tracking, companies can identify the elements that capture attention and trigger strong emotional responses, thus increasing the chances of sharing and viral success. By focusing on emotions such as joy, surprise, and excitement, brands can amplify their electronic word-of-mouth strategy and enhance the reach of their advertising campaigns.

3 The use of neuromarketing tools in social media

When exploring how neuromarketing applications are utilized in social media, it is essential to understand both the commercial objectives behind the use of these tools and the perceived benefits they offer to consumers.

Neuromarketing is increasingly applied in digital marketing, particularly on social media platforms. Various tools such as eye-tracking, facial coding, and EEG are becoming more widespread, enabling businesses to gain deeper insights into how consumers engage with content.

However, it is crucial to examine how well these applications align with consumer expectations and values. Striking a balance between business goals and user benefits helps establish a more sustainable and effective communication process. For businesses, this means not only maximizing the impact of their campaigns but also ensuring that users feel valued and respected in the use of their data and emotional responses.

3.1 Eye-Tracking on Social Media

Eye-tracking is one of the most commonly used tools in neuromarketing, especially in the context of social media marketing. This tool allows companies to track where a person's gaze is focused and measure how long they spend looking at specific elements of an ad or content. For businesses, it is an invaluable tool that helps optimize the visual elements of advertisements and website design, ensuring that the most attention-grabbing features are strategically placed to enhance engagement and conversion.

By understanding the visual behavior of users, companies can refine their marketing strategies, ensuring that their content captures attention effectively and delivers a more impactful message. This not only boosts the efficiency of marketing efforts but also contributes to creating a more personalized and relevant user experience.

3.1.1 Business Perspective

From a business perspective, eye-tracking is particularly valuable because it provides concrete data on the visual elements that capture users' attention. In social media marketing, attention is a critical resource. Understanding what draws a user's gaze allows companies to strategically place advertisements, optimize visual content, and enhance overall engagement. According to a study conducted by Mihaela Constantinescu et al. (2019), companies surveyed rated the usefulness of eye-tracking at 4.02 on a scale of 1 to 5, classifying it as "very useful." The primary goal for businesses is to identify which aspects of an advertisement or post attract the audience's interest and to adjust the design accordingly.

By leveraging eye-tracking insights, businesses can fine-tune their campaigns to ensure their key messages are effectively conveyed. This tool also helps businesses increase ROI by focusing on the most impactful visual elements, ensuring their advertising investments yield better results. The ability to track and analyze consumer gaze patterns allows for continual refinement of marketing strategies, improving the alignment between consumer preferences and the content delivered.

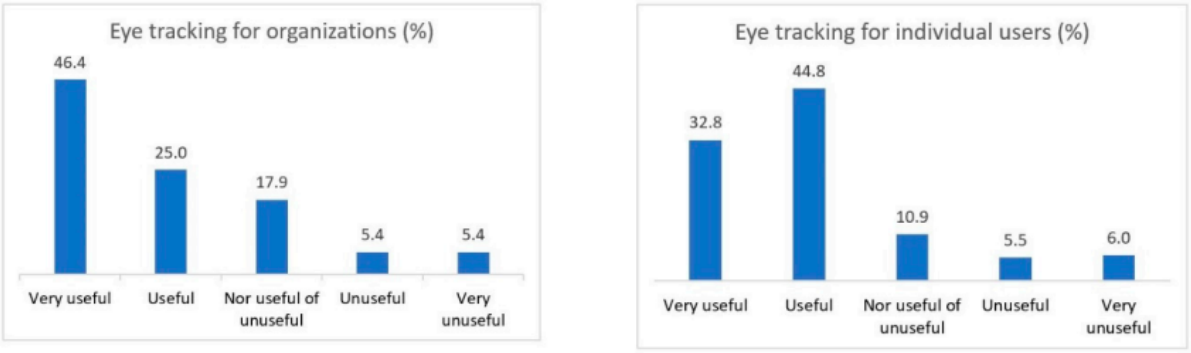
3.1.2 Consumer Perspective

For consumers, the benefits of eye-tracking are more nuanced. While some acknowledge that this tool can improve their online experience by helping brands present content that aligns with their preferences, others express concerns about its potentially intrusive nature. In the same study by Constantinescu et al. (2019), consumers gave eye-

tracking a slightly lower average rating of 3.93, indicating a generally positive perception but one that is less enthusiastic than that of businesses.

From the consumer's viewpoint, the main advantage of eye-tracking is that it helps brands tailor content more effectively to personal interests, leading to more relevant and personalized content displays. However, concerns about privacy and the extent to which their data is used without explicit consent remain a potential source of discomfort for some. Balancing personalization with privacy is essential to maintaining consumer trust in the use of such technologies.

3.2 Figure 1. (a) Utility of eye-tracking for organizations. (b) Utility of eye-tracking for individual users.



(a) (b)

Source : Mihaela Constantinescu and al. (2019).

However, an important observation deserves attention. Approximately 15.2% of consumers surveyed felt that eye-tracking primarily benefits businesses rather than users (Constantinescu et al., 2019). This divergence in perceptions highlights a significant challenge for companies: they need to better communicate how eye-tracking can enhance the user experience, emphasizing that this technology helps reduce irrelevant ads and promotes content personalization. By presenting eye-tracking as a tool for optimizing the user experience, companies can improve consumer perception and strengthen their trust in the technology.

Eye-tracking is a powerful tool for businesses in the realm of social media marketing, as it allows them to optimize visual elements and improve user engagement. However, for this technology to be better received by consumers, companies must focus on its direct benefits to users, such as content personalization and the reduction of irrelevant advertisements. By reshaping their communication around this technology and highlighting its potential to improve the user experience, brands can overcome consumer hesitations and foster a stronger relationship built on trust.

This requires a shift in narrative, where businesses not only leverage eye-tracking to boost their performance but also actively promote how these insights contribute to a more personalized and less intrusive digital environment for users. By addressing consumer concerns, companies can more effectively align their use of neuromarketing tools with user expectations, ensuring both parties benefit from the technology.

3.3 The use of facial coding on social media

Facial coding, which analyzes facial expressions to determine emotional responses, is another widely used neuromarketing application. It is particularly valuable for assessing how consumers emotionally engage with visual and multimedia content on social media platforms.

3.3.1 Business Perspective

From a business perspective, facial coding enables companies to test the emotional impact of various elements in their campaigns—whether visual, textual, or video content. By understanding consumers' emotional reactions, marketers can tailor their content to evoke stronger emotional responses, which are crucial for engagement and brand recall. According to the analysis by Mihaela Constantinescu et al. (2019), businesses rated facial coding with an average score of 4.02, indicating that they find it highly useful for evaluating emotional engagement and improving promotional strategies.

Facial coding offers companies a way to tap into subconscious emotional cues that might otherwise go unnoticed through traditional feedback methods. By analyzing how consumers react emotionally in real time, businesses can refine their messaging, ensuring that it resonates emotionally, ultimately leading to stronger connections and more effective advertising outcomes.

3.3.2 Consumer Perspective

For consumers, the benefits of facial coding lie in its potential to generate more personalized and emotionally resonant content. Consumers appreciate when brands understand their emotional responses, as this often leads to more meaningful interactions on social media. Emotional relevance not only enhances the user experience but also fosters deeper brand loyalty, as consumers feel that the brand "gets" them.

However, some consumers remain hesitant, feeling that facial coding benefits companies more than it does them. According to Constantinescu et al. (2019), consumers rated facial coding with an average score of 3.76, reflecting a generally positive but cautious attitude. This hesitation likely stems from concerns about data privacy and the potential for manipulation, as facial coding delves into personal emotional responses that many may consider sensitive.

For facial coding to gain broader acceptance among consumers, businesses must address these concerns by being transparent about how the data is used and ensuring that it directly contributes to a better, more personalized experience for the user.

Tableau 1: Purpose and benefits of using face coding in social media networks (%)..

Purposes for Which Organizations Would Use Face Coding in Social Media Networks	%	Benefits for Which Individuals Would Allow the Use of Face Coding in Social Media Networks	%
Testing campaign components (visual, text, video)	26.5	Determining the impact of social media elements on users	27.8
Determining reactions to the posted content	26.5	Understanding consumer desires/preferences	23.3
Improving the promotion activity	14.7	Discovering the true reaction, the one that could be masked by words	16.7
Measuring users' emotions to posts	11.8	Selected content displayed based on user preferences	13.3
Analysis of consumer behavior	14.7	Outline a user/consumer profile	12.2
To customize the offers	5.9	It is helpful for companies, not users	6.7

Source : Mihaela Constantinescu, Andreea Orindaru, Andreea Pachitanu, Laura Rosca, Stefan-Claudiu Caescu, et Mihai Cristian Orza (2019).

This rating of 3.76 indicates that while consumers acknowledge the potential benefits of facial coding in making content more relevant and personalized, they still have concerns regarding privacy and the use of their emotional data. If consumers feel that their emotional reactions are being exploited solely for commercial purposes, it could lead to distrust toward companies. Therefore, businesses must be transparent about how they use this data and emphasize that facial coding can enhance the user experience by making interactions more personalized and satisfying.

Facial coding is a powerful tool for companies seeking to improve emotional engagement on social media platforms. However, to ensure broader adoption and strengthen consumer trust, businesses need to be clear about how they utilize this data. By highlighting the personalization and user experience improvements that result from facial coding, companies can address privacy concerns and build a stronger relationship with consumers.

Transparency will be key in demonstrating that facial coding serves more than just business interests—it contributes directly to delivering content that aligns with users' preferences, reducing irrelevant interactions, and providing a more fulfilling digital experience. This approach not only fosters trust but also positions businesses as user-centric, valuing emotional data as a means to enhance the overall customer journey.

3.4 The use of EEG on social media

EEG (electroencephalography), which measures the brain's electrical activity, is one of the most intrusive neuromarketing tools. It allows companies to understand how consumers react to various stimuli on a subconscious level, offering insights that cannot be gathered from simple verbal or written feedback.

3.4.1 Business Perspective

For businesses, EEG is valuable because it provides a direct window into consumers' brain activity, enabling them to measure reactions without the filter of conscious thought. This helps marketers test how consumers respond to different products, content, or advertising strategies on a deeper, neurological level. However, while EEG offers significant advantages in understanding subconscious reactions, it is met with caution by companies. In the study by Mihaela Constantinescu et al. (2019), EEG received an average rating of 3.46 from businesses, indicating that while it is considered useful, there are reservations regarding its implementation.

The cautious attitude toward EEG among businesses may be due to its technical complexity, cost, and the perception that it is too invasive for regular marketing use. Additionally, there may be concerns about consumer discomfort and the potential backlash related to privacy issues. Despite these reservations, EEG can offer highly precise insights into how consumers emotionally engage with content, potentially providing an edge in highly competitive markets where emotional engagement is crucial.

3.4.2 Consumer Perspective

From the consumer's perspective, EEG raises concerns about its intrusive nature. While some consumers acknowledge that EEG could help brands better understand their preferences and reactions, many feel uncomfortable with the idea of having their brain activity monitored. According to Constantinescu et al. (2019), consumers rated EEG with an average score of 3.21, reflecting a mixed attitude—recognizing its benefits but also expressing significant privacy concerns.

Consumers may worry about the ethical implications of such invasive technology, particularly in terms of data security and the potential for misuse of sensitive information. The idea of tracking brain activity can evoke feelings of unease, as it touches on deeply personal and subconscious aspects of behavior that many would prefer to keep private. For EEG to be more widely accepted, companies will need to address these privacy concerns transparently and ensure that its use is ethical, consensual, and focused on enhancing the consumer experience without overstepping personal boundaries.

3.4.3 Tableau 2: Purpose and benefits of using EEG in social media networks (%).

Purposes for Which Organizations Would Use EEG in Social Media Networks	**%**	**Benefits for Which Individuals Would Allow the Use of EEG in Social Media Networks**	**%**
Determining reactions to the posted content	45.8	Identifying the reaction to stimuli, their impact	31.3
Testing the reaction to different products	37.5	Understanding consumer desires/preferences	29.2
The real reaction, unaltered by the way the individual expresses his opinion	8.3	Determining the true reaction, even if it is not described	25.0
To determine the areas of interest	4.2	Outline a user/consumer profile	8.3
To customize the offers	4.2	To determine the right content	6.3

Source : Mihaela Constantinescu, Andreea Orindaru, Andreea Pachitanu, Laura Rosca, Stefan-Claudiu Caescu, et Mihai Cristian Orza (2019).

4 Conclusion

In summary, while EEG offers powerful insights for businesses, its invasive nature and the discomfort it causes among consumers present challenges that must be carefully managed. Transparent communication about the purpose and benefits of EEG, as well as robust data protection measures, will be essential in building trust and ensuring its responsible use in marketing.

For companies to effectively utilize EEG, they must exercise caution and ensure that consumers feel their privacy is respected. It is crucial for businesses to communicate clearly about the benefits of EEG for consumers, particularly by emphasizing how this technology can create more personalized experiences that better align with users' expectations. If consumers feel that their brain data is being exploited solely for commercial purposes without any improvement in their user experience, it could lead to a loss of trust.

EEG is a powerful tool for understanding consumers' subconscious reactions to advertisements and other stimuli on social media. However, both businesses and consumers approach it with a degree of caution. For this technology to be accepted and effectively used, companies must safeguard consumer privacy and highlight the tangible benefits it can provide, not only for brands but also for users.

By focusing on ethical data use and transparency, businesses can bridge the gap between the technology's potential and consumer concerns, demonstrating that EEG insights are not just for profit but also to enhance users' overall online experience. Building trust through responsible use will be key to maximizing the effectiveness of EEG in digital marketing strategies.

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