In fiction, some humans have mental or physical abilities that qualify them as superheroes. Flash can run quicker than lightning, Hulk can obliterate the Earth, and Professor X can manipulate your mind. However, what some may see as science fiction is now becoming a reality. Like Professor X, companies are now able to read and manipulate your thoughts. Welcome to the world of commercial neuromarketing.

Neuromarketing was introduced as the field dedicated to creating superior advertising strategies through employing neuroimaging tests. Main neuroimaging tests for neuromarketing studies include the fMRI, MEG, and EEG. The fMRI diagnostic scans changes of blood flow in the brain, the MEG diagnostic portrays magnetic fields in the brain, and the EEG diagnostic utilizes electrodes to measure electrical signals in the brain (Daugherty & Hoffman, 2016). These tests highlight brain changes during marketing studies which are then used to create marketing strategies to increase product sales. On paper, this methodology is unproblematic. Unfortunately, neuromarketing is utilized by unchecked companies which seek to profit off of consumers contrary to academic neuromarketing in which strict guidelines monitor which research studies can be permitted. To preserve consumer autonomy, precise guidelines must be created to outline how neuromarketing should be employed commercially.

Up until now, neuromarketing research, in academic and commercial sectors, was limited due to a monetary barrier of entry (Miljkovic & Alcakovic, 2010). This barrier is now offset due to innovations like portable MRI scanners which cost $50,000 to purchase, compared to MRI scanners which cost $1 million to acquire (Sarracanie et al., 2015). Such innovations have allowed the National Security Agency (NSA) to use remote neural monitoring to detect feelings and thoughts from brain electrical activity while being able to send images to the visual cortex

and alter the subject's perceptions (St, Clair, Vs, Nsa, & Meade, n.d.). Thus, some consumers highlight that commercial neuromarketing research may lead to a "buy button" to turn individuals into buying robots through devices which can alter individuals' buying behavior remotely (Ciprian-Marcel, Lăcrămioara, Ioana, & Maria, 2009). However, advocates of neuromarketing proclaim that the dangers of the field are exaggerated. Notably, advocates of commercial neuromarketing may argue that all marketing strategies intend to increase consumerism in individuals by influencing buying behavior, so it would be ill to think of only commercial neuromarketing as an immoral marketing scheme (Stanton, Sinnott-Armstrong, & Huettel, 2016).

Nevertheless, the advocacy argument for commercial neuromarketing is unsound given that commercial neuromarketing diverges from previous soft marketing methods through the manner of advertising. Traditionally, soft marketing methods, like billboard advertisements, allowed the consumer to make decisions using the neocortex: the area of the brain used for critical thinking. In contrast, neuromarketing aims to bypass the neocortex and onto the primitive and emotional subsets of the consumer's brain (Sebastian, 2014). These subsets are commonly grouped to form the subconscious mind which does not beckon to its master: the rational mind.

For illustration, a theater in New Jersey flashed subliminal messaging with phrases like 'Drink Coca Cola' and 'Eat Popcorn' throughout movies. During intermissions, sales of concessions increased by 57%. Unsurprisingly, this exponential increase in sales from subliminal messaging may have triggered an altered state of consciousness for consumers to spawn unplanned purchases (Bentley, 2012). What seemed to be an innocent craving is actually commercial neuromarketing targeting the permeable mind to override rational intellect. Thus,

employing commercial neuromarketing is immoral as consumers are subjected to hard manipulation rather than soft marketing methods.

In response to the growing ethical concerns of neuromarketing, the NMSBA (Neuromarketing Science & Business Association) was initially created to implement ethical guidelines to regulate academic neuromarketing; recently, ethical guidelines have been created for research in commercial neuromarketing too. The guidelines have twelve codes related to outlining how neuromarketing research should maintain integrity, credibility, transparency as well as other core principles. For example, code #8 of NMSBA requires consent from parents when participants are not of age as research participants to prevent research that can potentially exploit the underdeveloped minds of adolescents (Thomas, Pop, Iorga, & Duca, 2018).

While these guidelines may enforce a code of conduct with academic neuromarketing, there is much to be desired. The ambiguous codes created by the NMSBA do not translate to commercial neuromarketing because the codes focus on outlining how neuromarketing should be researched ethically and not implemented ethically (Hensel, Iorga, Wolter, & Znanewitz, 2017). Indeed, the defining difference between academic neuromarketing and commercial neuromarketing is how the latter not only uses research but also implements the findings to profit off of customers.

Accordingly, these lax guidelines have enabled Walmart to recently implement neuromarketing strategies like facial recognition artificial intelligence to create compulsive buying behavior in customers (Lindström, 2012). Maintaining thousands of stores worldwide,

Walmart can gain valuable information and manipulate consumer behaviors globally. Walmart can follow the NMSBA's rules in terms of research but is able to implement unrestrained neuromarketing strategies.

In this increasingly globalized world, regulations are needed to inhibit predatory neuromarketing strategies. To prevent another New Jersey subliminal messaging experiment and to regulate neuromarketing tactics implemented in companies like Walmart, the creation of three additional NMSBA codes of conduct will hold businesses accountable. These codes include the protection of those who are mentally underdeveloped, the prevention of complete manipulation through neuromarketing, and the transparency in commercial neuromarketing through consumer consent (Hensel, Wolter, & Znanewitz, 2016).

As a result, commercial neuromarketing research and strategies will be held accountable for the present time. Such codes will create adherence of businesses to regulations and restore consumer autonomy through consumer-business transparency. Through transparency, all consumers are elevated to wield rationality in opting for commodities. Through rationality, consumers command their purchases unescorted by neuromarketing strategies.

While the clock ticks, the urgency to regulate commercial neuromarketing through precautionary codes grows steadily. Scholars must be cognizant of the advances in this ever-changing field and must be quick to add and revise ethical guidelines to regulate corporate marketing tactics. A wide eye must be kept and an uninfluenced brain must be maintained to

tackle this issue of commercial neuromarketing.

References

Bentley, C. (2012, June). Mind Readers: How Neuromarketing Could Change Television. Retrieved from https://core.ac.uk/download/pdf/190336055.pdf

Ciprian-Marcel, P., Lăcrămioara, R., Ioana, M., & Maria, Z. (2009, May). *(PDF) Neuromarketing - getting inside the customer's mind*. ResearchGate. https://www.researchgate.net/publication/41163693_Neuromarketing_-_getting_inside_th e_customer%27s_mind

Daugherty, T., & Hoffman, E. (2016). *Neuromarketing: Understanding the Application of Neuroscientific Methods Within Marketing Research. Ethics and Neuromarketing, 5–30.* doi:10.1007/978-3-319-45609-6_2

Hensel, D., Wolter, L.-C., & Znanewitz, J. (2016). *A Guideline for Ethical Aspects in Conducting Neuromarketing Studies. Ethics and Neuromarketing, 65–87.* doi:10.1007/978-3-319-45609-6_4

Hensel, D., Iorga, A., Wolter, L., & Znanewitz, J. (2017). Conducting neuromarketing studies ethically-practitioner perspectives. *Cogent Psychology*, *4*(1). https://doi.org/10.1080/23311908.2017.1320858

Lindström, M. (2012). *Brandwashed : tricks companies use to manipulate our minds and persuade us to buy* (pp. 208–209). Kogan Page.

Miljkovic, Milorad and Alcakovic, Slavko, Neuromarketing: Marketing Research Future? (October 29, 2010). (2010) Neuromarketing: Marketing research future? Singidunum

revija, 7 (2), p 273-283. Available at SSRN: https://ssrn.com/abstract=2333448

Sarracanie, M., LaPierre, C. D., Salameh, N., Waddington, D. E. J., Witzel, T., & Rosen, M. S. (2015). Low-Cost High-Performance MRI. *Scientific Reports*, *5*. Scientific Reports. https://doi.org/10.1038/srep15177

Sebastian, V. (2014). *Neuromarketing and Evaluation of Cognitive and Emotional Responses of Consumers to Marketing Stimuli. Procedia - Social and Behavioral Sciences, 127, 753–757.* doi:10.1016/j.sbspro.2014.03.349

St, J., Clair, A., Vs, Nsa, & Meade. (n.d.). *How The NSA Harasses Thousands Of Law Abiding Americans Daily By The Usage Of Remote Neural Monitoring (RNM) Independently Operating Personnel Target Citizens NSA's Domestic Electronic Surveillance Network Signals Intelligence Remote Computer Tampering Detecting EMF Fields in Humans for Surveillance NSA Signals Intelligence Use of EMF Brain Stimulation Capabilities of NSA operatives using RNM NSA Signals Intelligence Electronic Brain Link Technology Table: An example of EMF Brain Stimulation NSA Techniques and Resources Remote RNM Devices Spotters and Walk-Bys in Metropolitan Areas Chemicals and Drugs Intelligence/Anti-Terrorist Equipment Resources Further Resources*. Retrieved from http://www.chemtrailplanet.com/PDF/REMOTE%20NEURAL%20MONITORING%20AND%20ELECTRONIC%20BRAIN%20LINK.pdf

Stanton, S. J., Sinnott-Armstrong, W., & Huettel, S. A. (2016). Neuromarketing: Ethical Implications of its Use and Potential Misuse. *Journal of Business Ethics*, *144*(4), 799–811. https://doi.org/10.1007/s10551-016-3059-0

Thomas, A. R., Nicolae Alexandru Pop, Ana Maria Iorga, Cristian Ducu, & Springer International Publishing Ag. (2018). *Ethics and Neuromarketing Implications for Market*

Research and Business Practice. Cham Springer International Publishing Springer.