The Harmful Effects of Visual Disruptions and their Role in Addictive Online Gambling Behaviour

Personal Summary:
I have a Ph.D. degree in Marketing from Imperial College London, a M.A. in Psychology from the University of Toronto, Canada, and a H.BSc. degree in Human Biology and Psychology, also from the University of Toronto. I am writing in my capacity as a Lecturer in Marketing, currently based at the University of Sussex, where I conduct research into the role of visual attention and how it might affect product preferences and other types of behaviour online.

Submission Summary:
- An overview of gambling behaviour is presented, followed by what is known on the topic, and what research has been conducted to shed additional light in the area of online gambling, behaviour, and visual disruptions.
- This submission is addressing two of the licensing objectives of the Gambling Act 2005: b) “ensuring that gambling is conducted in a fair and open way,” and c) “protecting children and other vulnerable persons from being harmed or exploited by gambling”.
- This submission demonstrates that the timing, location, and colour of online adverts, and the way they are presented online, biases where attention is allocated on a webpage and which products are selected.
- In line with the “Consideration of Application: General Principles” section of the Gambling Act 2005, Principle component 70, point 3b) is “making assistance available to persons who are or may be affected by problems related to gambling,” a series of interventions are proposed in this submission.

Evidence for: The Select Committee on the Social and Economic Impact of the Gambling Industry, House of Lords

Background Information: Gambling Severity
1. The severity of problem gambling is one of the highest among sixteen to forty-four year olds, and while such behaviour is driven by the desire “to win” and to play “for personal enjoyment” (Gambling Commission, Feb 2019), these activities lead to negative life outcomes and lack of self-control (Gambling Commission, June 2019). In parallel to the large proportion of young adults following gambling companies on social media, many are increasingly exposed and prompted by online adverts, leading to a surge in online gambling activities.
2. Changes in technology require updated digital skills and the need for digital inclusion (Office for National Statistics, Mar 2019), but this can be at odds with the need to reduce problematic behaviour, such as online gambling. The constant access to information online – with various sources fighting to capture attention – can have negative repercussions for vulnerable groups, whether it is attributed to online shopping or gambling. While the visual system is adept at filtering information, it also acts as a double-edged sword because our attention gets distracted by novelty and rapidity, including flashing and pop-up images (Barrett, Tugade, & Engle, 2004).

**Adverse Effects of Visual Disruptions: Pop-up/Flashing Images and Adverts**

3. The effect of pop-up and flashing images online is three-fold: 1) these types of visual distractions capture attention, but 2) they also lead to negative mood formation (Howard & Barry, 1994) and annoyance (Cho & Cheon, 2004), and 3) they slow down the way one searches for information online (Burke, Hornof, Nilsen, & Gorman, 2005; Sundar & Kalyanaraman, 2004; Xia & Sudharshan, 2002). To reverse the negative effects that these visual disruptions have, marketers have sought to optimize their timing in order to shift the way consumers pay attention to a specific piece of information or to persuade them to purchase or click on something (Kupor & Tormala, 2015). Other types of modifications include changing the frequency and timing of advert exposure and images that act as visual disruptions to increase their likability (Drèze & Hussherr, 2003).

**Modifying the Timing of Visual Images Affects Where Attention is Allocated on a Page**

4. By utilizing a novel framework based on research in cognitive psychology (Anderson, 2011; Corbetta & Shulman, 2002) my collaborators and I (Luca et al., 2016; Luca et al., 2017) demonstrated that by varying the display of flashing images by a few hundred milliseconds, profound effects on behaviour are observed, such as where attention is allocated and what products are clicked on in terms of preferences. For instance, images appearing (or flashing) in quick succession, within a fifteenth of a second (150 ms) can attract attention to that area on the page. A series of experiments demonstrated that participants are faster to respond to these types of images. However, merely increasing the timing between successive images to a third of a second (350 ms) can produce contrasting effects: attention is shifted towards another area on the page.

5. In addition to the timing of adverts biasing attention from one side of a page to another, simple changes in colour results in a similar phenomenon: when two images appear quickly (i.e. within 150 ms), participants are faster to respond to the same colour. Therefore, modifying the timing between images can divert attention to a specific area or colour.

6. In another series of experiments, my collaborators and I demonstrated that in a virtual task, irrelevant flashing images can influence what type of
products participants select. This was depended on the timing of these images, their colour, and location.

**The Importance of Industry Regulation**

7. As it stands, the advertising industry reports that successful exposure to adverts online should be 14 seconds or more (Inskin, 2017) and the IAB guidelines aim to restrict animated ads to 15 seconds or less (IAB, 2018). Despite this, 0.7 seconds is the median time that an advert is viewed, and approximately 30% of adverts are viewed for as little as one second or less (Inskin, 2017). As the digital advertising industry is worth billions (Interactive Advertising Bureau, 2018), attention should be focused on short-lived images and advertisements online and the detrimental effect they may have in shifting attention and biasing behaviour online.

8. In addition to the increase in gambling online, especially on laptops and mobile phones, the lines between online gambling and games have blurred: 21% of people surveyed by the Gambling Commission have played games that resemble gambling sites (Feb 2019). Out of this merger, the need to regulate gambling-related adverts and images associated with gambling-related activities grows.

**Summary and Proposed Solutions:**

9. Multiple short-term and long-term solutions are needed to address the misuse of shifting attention online and the potential effects it may have on vulnerable groups, especially in the context of gambling, its promotion, and increased gamification nature.

10. Concrete short-term solutions could be to impose restrictions on the timing, location, and colour of fast-paced flashing and pop-up adverts, specifically those appearing between 0.15 and 0.35 seconds. This intervention would be useful wherever gambling and adverts intersect in the online world, and more so in instances where gambling is gamified.

11. Long-term solutions would include the need to monitor and assess the actual impact that flashing and pop-up adverts have on attention and what these mean in terms of monetary and psychological consequences for the individual and society.

**References:**


need-viewable-14-seconds-seen.


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