EXPLORING ADVERTISING BLINDNESS IN THE METAVERSE: AN EMPIRICAL INVESTIGATION USING CONSUMER NEUROSCIENCE

Marco Mandolfo[a], Michele Di Dalmazi[a], Francesco Di Paolo[a], Lucio Lamberti[a]

[a] *Politecnico di Milano, Department of Management, Economics, and Industrial Engineering, Milan, Italy*

Contact information: For further information, please contact Marco Mandolfo, Politecnico di Milano, Department of Management, Economics, and Industrial Engineering, Via Lambruschini 4/B, Milan, 20156, Italy. Email: marco.mandolfo@polimi.it

Keywords: Advertising blindness; Advertising effectiveness, Metaverse; Consumer behavior; Consumer Neuroscience

Description: This experimental paper examines advertising blindness in the metaverse, utilizing eye-tracking and neurophysiological tools to analyze attention and ad recognition's impact on brand recall.

EXTENDED ABSTRACT

Research Question:

Despite the escalating interest in the metaverse as an advertising medium, a significant gap exists in extant research and practice exploring the nuances of product placement within this context. Marketing practitioners are experimenting with diverse brand experiences, employing various narratives and degrees of induced presence to maximize product placement effectiveness. However, current strategies often overlook factors that influence advertising blindness, namely a phenomenon where individuals cognitively evade advertisements. This

oversight can lead to considerable economic repercussions due to inefficient advertising spending. Scholars have also recognized the importance of employing an information-processing lens to examine factors that may contribute to advertising avoidance in immersive virtual environments (Kim, 2021) and have called for a comprehensive framework to measure advertising effectiveness via both explicit and implicit responses (Dwivedi et al., 2023). Addressing these research gaps is crucial for both advancing academic understanding and for equipping marketers with insights for optimizing product placements. Based on this rationale, the present paper aims to investigate advertising blindness in immersive virtual environments in conjunction with two different degrees of induced presence (i.e., high vs low) and two user goals (i.e., free exploration vs goal-directed).

Method and Data

A between-subjects experimental design was adopted to investigate the effect of induced presence (high vs low) and user goals (free exploration vs goal-directed browsing) on advertising blindness in immersive virtual environments. We designed two virtual environments consisting of seven-room, 3D exhibitions featuring unbranded clothing items and a pair of branded shoes. The degree of induced presence was manipulated through the inclusion or absence of 3D spatialized audio. Whereas the users' goals manipulation was achieved by assigning distinct tasks. Participants in the free-browsing treatment were instructed to freely explore the space. Contrastingly, participants in the goal-directed treatment were asked to find a virtual guitar situated in the virtual environment. The experimental activity was conducted in a controlled laboratory setting with 122 participants (49% women, $M_{age} = 26.4$, SD = 8.4, age range: 18-62). Throughout the experiment, implicit measures related to ocular and cortical responses were measured using eye-tracking and electroencephalogram (EEG). The eye-tracking data was used to assess visual selective attention, while EEG data was used to assess

vigilant attention during the product placement exposure. Explicit self-reports related to perceived presence, visual appeal, interactivity, arousal, valence, advertising recognition, and brand recall were also gathered.

Summary of Findings

Our empirical evidence showed the existence of a significant main effect of user goals on selective visual attention but found no such effect for induced presence. Our findings indicate that brands that facilitate explorative behavior, sparking spontaneous encounters with product placements, prove more effective at reducing advertising blindness compared to brands adopting narratives that impose specific tasks. This supports the notion that advertising blindness is linked to increased cognitive load, consistent with earlier research on webpages. Also, our results showed that enhancing the sense of presence through auditory cues in immersive virtual environments did not lead to changes in advertising recognition and, in turn, advertising blindness. This could be attributed to the substantial immersion already provided by visual elements in virtual environments. Furthermore, our results showed that user goals have a positive indirect effect on the individual processing of advertising. Through a process view, we demonstrated that heightened vigilant attention during the product placement exposure has a positive effect on the recognition of advertising and, in turn, on brand recall. This observed behavioral mechanism aligns with prior research, indicating that recall of embedded advertising involves both implicit and explicit processes.

Key Contributions

This study makes several contributions to the marketing literature and offers practical implications for advertisers and marketing practitioners. First, we contribute to the existing literature by advancing the understanding of the underlying processes that affect advertising

blindness in immersive virtual environments. Our empirical results explain advertising blindness as the outcome of a chain-relationship that is indirectly influenced by the typology of the task and involves attentional and cognitive responses. To the best of our knowledge, this is also the first study to explore these processes through a multimethod approach that includes eye-tracking, electroencephalography, and self-reports. Second, our findings offer practical contributions to advertisers and marketing practitioners in terms of product placement strategies in immersive virtual environments. By identifying factors that impact the effectiveness of advertising in these environments, we offer insights into how advertisers can optimize their product placement strategies to enhance advertising recognition and reduce advertising blindness in the metaverse.