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The Impact of Marketing Communications
in Virtual Reality on Consumer Attitudes

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Introduction

In recent years, the rapid development of digital technologies has significantly transformed the functioning of contemporary markets as well as the forms of communication between enterprises and consumers. One of the most technologically advanced solutions increasingly applied in marketing is virtual reality (VR). This technology enables the creation of immersive digital environments in which users can experience presented content in an interactive and multisensory manner. Unlike traditional forms of marketing communication, such as print, television, or two-dimensional digital content, virtual reality allows for a substantially deeper level of user engagement and a more intensive experience of the presented message.

With the development of immersive technologies, growing attention has been devoted to their application in marketing activities. Virtual reality enables, among other things, product and service presentation, the creation of brand experiences, the design of virtual showrooms, and the simulation of purchasing situations. The use of VR in marketing communication may increase user engagement, enhance message memorability, and intensify emotional responses to the presented offer. Therefore, this technology is perceived as a tool with considerable potential for influencing consumer attitudes.

The literature emphasizes that consumer attitudes constitute one of the key factors associated with the process of market decision-making. These attitudes are multidimensional, encompassing cognitive, affective, and behavioral components. The effectiveness of marketing communication depends not only on message content but also on the manner of its presentation and the characteristics of the communication channel through which it is delivered. In the context of immersive technologies, an important research question arises as to how virtual reality influences individual dimensions of consumer attitudes.

A review of the existing body of literature reveals a significant research gap in this area. Previous studies on the use of virtual reality in marketing have primarily focused on selected consumer responses, such as user engagement, perceived attractiveness, or purchase intentions. Attempts to comprehensively analyze consumer attitudes while accounting for their multidimensional structure have been relatively rare. Moreover, prior research on the

use of virtual reality in marketing has largely neglected the implicit dimension of consumer attitudes, focusing primarily on declarative evaluations.

An additional limitation of previous studies is that many were conducted using VR systems characterized by low or moderate levels of immersion, which may have constrained the ability to fully capture users' cognitive, emotional, and behavioral responses. As a result, the mechanisms through which marketing communications in virtual reality influence consumer attitudes remain insufficiently understood.

Research Objectives and Research Questions

The research problem of this dissertation is formulated as follows: how do marketing communications in virtual reality influence consumer attitudes? This problem refers to identifying the mechanisms through which marketing messages presented in a virtual reality environment affect individual dimensions of consumer attitudes and to determining the relationships between explicit and implicit responses.

To specify the research problem, the following research questions were formulated:

- How do marketing communications in virtual reality influence consumer attitudes in the cognitive dimension?
- How do marketing communications in virtual reality influence consumer attitudes in the affective dimension?
- How do marketing communications in virtual reality influence consumer attitudes in the behavioral dimension?
- What is the relationship between the level of implicit aversion toward VR-based marketing communication and explicit attitudes in the cognitive, affective, and behavioral dimensions?

The main objective of the study was to determine the relationship between the reception of marketing communications in virtual reality and consumer attitudes. To achieve this objective, the following specific objectives were formulated:

- To determine the impact of VR-based marketing communication on the memorability of information about the offer compared to 2D presentation.

- To assess the perceived attractiveness of the VR communication channel, the marketing message, and the offer compared to 2D presentation.
- To determine the relationship between the perceived attractiveness of the marketing message and the perceived attractiveness of the offer.
- To determine the impact of VR-based communication on purchase intentions.
- To compare the level of implicit aversion toward marketing communication in VR and 2D conditions.
- To determine the relationship between implicit aversion toward VR communication and explicit attitudes in cognitive, affective, and behavioral dimensions.

The formulated research objectives and questions define the analytical framework of the study and constitute the basis for the empirical research, corresponding to a set of six main research hypotheses along with detailed hypotheses.

Structure of the Dissertation

The dissertation has a theoretical and empirical character and consists of an introduction, four chapters, a conclusion, a bibliography, and appendices.

Chapter One presents the theoretical foundations for the analysis of consumer attitudes. It discusses the concept of attitudes and their multidimensional structure, encompassing cognitive, affective, and behavioral components. The chapter also reviews selected models explaining the mechanisms underlying the formation of consumer attitudes and their role in market decision-making processes. Particular attention is devoted to the relationships between declarative attitudes and automatic responses, which provides the basis for incorporating the implicit dimension of consumer attitudes in the subsequent parts of the study.

Chapter Two is devoted to the use of virtual reality in marketing communication. It outlines the nature and key characteristics of VR technology, with particular emphasis on the level of immersion and interactivity of virtual environments. The chapter also reviews previous research on the application of virtual reality in marketing and discusses potential mechanisms through which immersive communication environments influence consumer attitudes.

Chapter Three is methodological in nature and presents the research design and the course of the empirical study conducted for the purposes of the dissertation. It identifies the research gap, formulates the research problem, objectives, and hypotheses, and defines the subject and scope of the study. The chapter also describes the research method, the laboratory experiment procedure, the operationalization of variables, the characteristics of the research instruments, and the methods of data analysis.

Chapter Four presents and interprets the results of the empirical research conducted in the laboratory experiment. It includes findings on the impact of marketing communications presented in virtual reality on individual dimensions of consumer attitudes, as well as relationships between explicit and implicit attitudes. The results are discussed in relation to the existing body of literature, and their theoretical and practical implications are identified.

The dissertation concludes with a summary of the key research findings, a presentation of the main conclusions drawn from the analyses, as well as a discussion of the study's limitations and directions for future research.

Methodology

The research objectives were pursued through a laboratory experiment designed as a structured research procedure consisting of three successive phases. The study involved a total of 96 participants – adult representatives of Generation Z – assigned to research groups in accordance with the adopted experimental design.

In the first phase, participants were exposed to marketing communications presented through two different communication channels. In the experimental groups, the message was presented in a virtual reality environment using VR headsets, whereas the control group was exposed to a traditional two-dimensional presentation displayed on a tablet. In the second phase, implicit attitudes were measured using the Implicit Association Test (IAT), enabling the identification of automatic affective reactions toward the VR communication channel. In the third phase, data on explicit attitudes in the cognitive, affective, and behavioral dimensions were collected using questionnaire-based instruments.

The study was conducted in two stages involving participants with different levels of experience in using virtual reality technologies. This design enabled an analysis of the impact

of VR-based marketing communication both in comparison with the 2D channel and with regard to differences in user experience with immersive technologies. The empirical context of the study was the tourism industry, in which virtual reality is increasingly used as a tool for presenting offers.

Results

The results of the experiment indicate that the impact of marketing communications in virtual reality on consumer attitudes varies depending on the specific attitudinal dimension.

In the cognitive dimension, no significant differences were found between the VR group and the control group in terms of information memorability. This indicates a lack of support for the hypothesis assuming higher memorability in immersive communication conditions. However, higher memorability was observed among participants with greater prior experience in using VR compared to those without such experience.

In the affective dimension, significant differences were observed between the communication channels. Marketing communications presented in virtual reality were evaluated as more attractive than those presented in the two-dimensional channel. Higher evaluations concerned the attractiveness of the communication channel, the marketing message, and the presented offer. A strong positive relationship was also identified between the perceived attractiveness of the marketing message and the perceived attractiveness of the offer.

In the behavioral dimension, marketing communications presented in virtual reality increased participants' declared willingness to engage with the presented offer to a greater extent than communications delivered via the two-dimensional channel.

The analysis of implicit attitudes revealed that participants exhibited a higher level of implicit aversion toward marketing communications presented in virtual reality compared to traditional communication. At the same time, the level of this aversion varied significantly depending on prior experience with VR, with more experienced users demonstrating lower levels of implicit aversion.

The findings further indicate that a higher level of implicit aversion toward VR-based marketing communication is associated with lower perceived attractiveness of the offer and

lower willingness to engage with it, while simultaneously being linked to higher memorability of information.

Mediation analyses show that implicit aversion toward VR communication plays a significant yet differentiated role in the relationships between prior VR experience and various dimensions of consumer attitudes. In the case of information memorability, a suppression effect was identified. The direct effect indicates that more frequent use of VR increases memorability, whereas the indirect suppression effect shows that reduced implicit aversion is associated with lower memorability. Consequently, the indirect effect partially masks the positive impact of VR experience on memory. A different mechanism emerged with regard to the evaluation of offer attractiveness and purchase intentions. In both cases, implicit aversion toward the VR communication channel functioned as a mediating variable through which experience in using the technology translated into consumers' affective and behavioral responses. A reduction in aversion was associated with higher evaluations of offer attractiveness and stronger purchase intentions.

Theoretical and Practical Implications

The findings contribute to the development of economic sciences, particularly in the fields of behavioral economics and consumer behavior theory. The results deepen the understanding of how consumer attitudes are formed in immersive communication environments and provide insights into decision-making processes in highly stimulating technological contexts. The analyses demonstrate that the impact of marketing communications in virtual reality is non-linear and varies depending on both the attitudinal dimension and the user's level of experience with VR.

A key theoretical contribution of the dissertation is the challenge it poses to linear hierarchy-of-effects models in immersive communication contexts. The findings reveal no significant differences in memorability between VR and 2D channels and confirm the autonomy of the cognitive dimension, while significant effects are observed in the affective and behavioral dimensions. This suggests that, under high immersion conditions, relationships between attitude components are non-linear and deviate from the traditional knowledge-to-action sequence.

The study also contributes to the development of the Associative-Propositional Evaluation (APE) model by highlighting the importance of implicit attitudes in shaping consumer responses to VR-based marketing communication. The results demonstrate that implicit aversion toward VR functions as a mediating mechanism between user experience and explicit evaluations and purchase intentions.

One of the most novel findings is the identification of a suppression effect in memory processes. While increased VR experience enhances memorability, this effect is partially offset by the indirect influence of implicit aversion, which – despite decreasing with experience – is associated with lower memorability.

The results further contribute to innovation resistance theory by demonstrating that barriers to the adoption of virtual reality may be implicit and not always reflected in declarative consumer evaluations. Additionally, user experience with VR emerges as a key factor differentiating cognitive, affective, and behavioral responses.

The findings indicate that virtual reality should not be treated merely as a communication channel, but rather as an environment that reshapes the relationships between cognitive, emotional, and behavioral processes, with implicit attitudes playing a regulatory role.

From a practical perspective, the results provide concrete recommendations for organizations using virtual reality in marketing communication targeted at adult representatives of Generation Z. The effectiveness of VR communication depends largely on users' prior experience with immersive technologies, which implies the need to tailor communication strategies accordingly.

For less experienced users, it is particularly important to design virtual environments with intuitive navigation and low interface complexity, as excessive cognitive load associated with technology use may reduce the attractiveness of the presented offer. The results also indicate the necessity of balancing visual attractiveness with informational clarity, as excessive visual stimuli may impair information processing.

Another important implication is the need to manage implicit aversion toward VR, which may limit the translation of positive emotional responses into purchase intentions. In practice, this requires implementing solutions that reduce user uncertainty and facilitate orientation within the virtual environment.

Finally, the findings suggest that the use of virtual reality in marketing communication can serve as a tool for building an innovative brand image and enhancing the perceived attractiveness of the offer.