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The Impact of Extended Reality (XR) on Today's Advertising and Consumers A Research on XR Advertising as A Disruptive Marketing Strategy and Its Effects on Consumers Through the Psychology of Advertising

Genişletilmiş Gerçekliğin (XR) Günümüz Reklamcılığına Ve Tüketicilere Etkisi Reklam Psikolojisi Üzerinden Yıkıcı Bir Pazarlama Stratejisi Olan XR Reklamcılığı Ve Tüketicilerdeki Etkileri Üzerine Bir Araştırma

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Abstract

Extended reality (XR), which has become a game-changer in the global market, has started to transform and reshape today's advertising and, accordingly consumers. As a technological term encompassing augmented reality (AR), virtual reality (VR), and mixed reality (MR), XR offers marketers and advertisers new methods and techniques unlike other conventional methods. In this direction, XR advertising, which changes today's existing advertising techniques, is conceptualised as a "disruptive marketing strategy", which means abandoning the old rules by bringing something new to the market. Therefore, these emerging technologies and the new marketing strategies implemented with them lead to a disruptive transformation in the psychological effects of the advertising market on consumers.

In line with the systematic literature review, this study aims to examine XR ads as a disruptive marketing strategy, the psychology of advertising as a research field and the effects of XR ads on consumers through the psychology of advertising.

In the direction of the analysis conducted in this study, which provides a critical perspective on XR technologies and advertisements, it has been determined that the common feature of XR advertisements is based on experiential marketing, and it has been concluded that it causes different and more psychological impacts on consumers in line with the virtual stimuli, content and virtual environments created and designed compared with traditional advertising techniques. Furthermore, in line with the methodology of this study, it has been observed that advertising psychology and consumer psychology, two similar fields of research, are often confused with each other. Accordingly, this study has also attempted to fill a gap in the literature by revealing the distinction between these two fields for the first time.

Öz

Küresel pazarda oyunun kurallarını değiştiren bir unsur haline gelen genişletilmiş gerçeklik (XR), günümüz reklamcılığını ve dolayısıyla tüketicileri dönüştürmeye ve yeniden şekillendirmeye başlamıştır. Artırılmış gerçeklik (AR), sanal gerçeklik (VR) ve karma gerçekliği (MR) kapsayan teknolojik bir terim olarak XR, pazarlamacılara ve reklamcılara diğer geleneksel yöntemlerden farklı olarak yeni yöntem ve teknikler sunmaktadır. Bu doğrultuda günümüzün mevcut reklam tekniklerini değiştiren XR reklamcılığı, piyasaya yeni bir şey getirerek eski kuralları terk etmeyi ifade eden "yıkıcı bir pazarlama stratejisi" olarak kavramlaşmaktadır. Dolayısıyla gelişen bu teknolojiler ve beraberinde

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uygulanan yeni pazarlama stratejileri, reklam pazarının daha evvel tüketcilerde olşuturduğu psikolojik etkilerde de yıkıcı bir dönüşüme yol açmaktadır.

Değişen ve dönüştürülen reklam ve psikolojik etkilerini araştıran bu çalışma sistematik literatür taraması doğrultusunda; öncelikle yıkıcı bir pazarlama stratejisi olarak XR reklamlarını, bir araştırma alanı olarak reklam psikolojisini ve XR reklamlarının tüketiciler üzerindeki etkilerini reklam psikolojisi üzerinden incelemeyi amaçlamaktadır.

XR teknolojileri ve reklamlarına yönelik eleştirel bakış açısı sunan bu çalışmada yapılan analizler doğrultusunda, XR reklamlarının ortak özelliğinin deneyimsel pazarlamaya dayandırıldığı tespit edilmiş olup, yaratılan ve tasarlanan sanal uyaranlar, içerikler ve sanal ortamlar doğrultusunda tüketiciyi geleneksel reklam tekniklerine göre daha fazla ve farklı şekillerde psikolojik olarak etkileyebileceği sonucuna varılmıştır. Ayrıca, bu çalışmanın metodolojisi doğrultusunda, yapılan araştırmada iki benzer araştırma alanı olan reklam psikolojisi ve tüketici psikolojisinin sıklıkla birbirine karıştırıldığı gözlemlenmiştir. Bu doğrultuda çalışma, bu iki alan arasındaki ayrımı da ilk kez ortaya koymaktadır.

Keywords Extended reality (XR) · XR advertising · Disruptive marketing strategy · The psychology of advertising · The psychological effects of XR ads

Anahtar Kelimeler Genişletilmiş gerçeklik · Genişletilmiş gerçeklik reklamı · Yıkıcı pazarlama stratejisi · Reklam psikolojisi · Genişletilmiş gerçeklik reklamlarının psikolojik etkileri

Introduction

In the competitive free economy market, advertisers develop creative advertising models and strategies to get one step ahead. Advertising, with its classical definition, refers to all efforts to promote a product or service to large masses of people by purchasing time and space from mass media with a clear understanding of who pays for it (Elden, 2005, p.62). On the other hand, advertising strategy, is "the formatting of a sales message prepared for use in mass media and containing a promise that conveys the benefits of the product or service being promoted" (Güz, 2014, p.20). In other words, advertising strategy refers to all the basic decisions related to the determination of the advertising message and advertising planning in line with the promotion message and advertising objectives (Bir, 1988, p.14). According to Hatiboğlu (1993, p.147), considering various factors to determine the best strategy and preparing advertisements accordingly are necessary conditions for the success of advertisers. When it is looked at today's advertising and its strategies, it is seen that they have been moved to a different dimension with new technologies. In this context, especially wearable and spatial technologies and the extended realities (XR) applied within these technologies have not only triggered the development and transformation of display advertising, but also transformed its impact on consumers.

As is known, the success rate of advertising is related to the extent to which it mobilises the target audience in line with the message conveyed through the advertisement. According to Karounwi (1998; as cited in Adelakun et al., 2015, p.83), the ultimate goal of the producers and marketers is "to sell product and make profit and one of the ways to achieve this, is through advertising". In this sense, advertising is the art of demand creation (Babacan, 2012, pp.22-23). According to Ogilvy (1989, p.115), a good advertisement should focus consumers' attention on the product and mobilise them to try it. With this understanding, it is understood that the success of a good's advertisement can be measured not directly by how attractive or meaningful the advertisement is, but by how much demand it creates in the market, and accordingly how much mobilises the consumers. In line with the advertising strategy, activating some target audience's impulses is important for the advertisement to achieve its purpose and be successful. In this respect, today's advertising industry benefits from the psychophysiological techniques of neuro-marketing to influence consumers (Wang et al., 2008, p.199). According to the research, the psychophysiological techniques used in advertisements have a positive impact on branding. For instance, Young's (2002, pp.42-43) study on the impact of television advertisements of personal care products on 125 consumers revealed, that there are

two different information-processing models in the human brain, content and aesthetics, and that these two models are effective on brand creation and brand image. Hence, these studies in the literature are used and enhanced to create a strategy by the advertisement industry.

A review of the literature reveals that there are numerous interdisciplinary studies to clarify the impact of advertisements on both advertisers and consumers. Therefore, in line with the systematic literature review as a research method, this study primarily aims to examine XR technologies and XR advertisement as a disruptive marketing strategy with its effects on consumers in the context of the psychology of advertising, which is a sub-field of media psychology. Besides, in this study, while investigating XR ads and their psychological impacts on consumers, it has been observed that two similar research fields, the psychology of advertising and consumer psychology, which examine the effects of ads on consumers, lead to a confusion of concept. For this reason, this study also seeks to fill a gap in the literature by clarifying the distinction between the two fields. On the other hand, this study conducts semiotic analyse on XR advertisements and, offers a critical perspective on XR technologies and advertisements. In this direction, this study expects to make a contribution to the literature in terms of XR ads with its psychological effects on consumers and revealing the difference between the psychology of advertising and consumer psychology.

Extended Reality (XR)

The term "virtual reality" has entered our lives with the popularity of today's advanced technologies. Although virtual reality is a more familiar term, it is only one type of extended reality. Unlike virtual reality, the broader term extended reality describes any combination of real and virtual environments between human and computer input (Alnagrat et al., 2022, p.83). Extended reality (XR) is, an umbrella term that encapsulates augmented reality, virtual reality, mixed reality, and everything in between.

Augmented reality (AR), first introduced in 1990, has been created by placing artificially designed objects on top of real objects (Şahinaslan, 2020, pp.36-37). As a term, AR refers to the placement of information or virtual objects in the real world, allowing virtual objects to coexist in the same space as real objects. AR is a technology that allows the real-time integration of real and virtual objects in the field of view. In other words, virtual and real objects are combined as both interactive and 3D in AR technology. In this sense, AR allows users to see the real world with virtual objects superimposed on or merged with the real world (Azuma, 1997, p.356). When these artificial realities are combined with media content, AR has become one of the most prominent advertising formats worldwide. Because AR formats are easily experienced even with smartphones so access to AR ads is easier and more widespread.

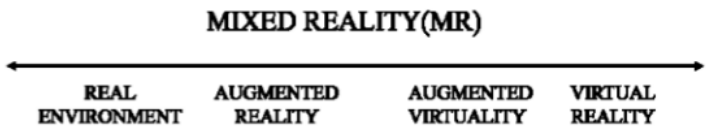
Another concept, virtual reality (VR), refers to a computer-generated augmented artificial environment that mimics the real environment through sensory elements such as visuals and sounds (Brito, 2011; as cited in Basev, 2023, p.207). In other words, VR means immersing the user in a completely synthetic environment without being in the real world. Hence, VR expresses "a computer-generated, fully artificial digital environment in which a user can perceive and interact with the environment through various peripheral devices" like virtual goggles and headsets (Alnagrat et al., 2022, p.83). The difference between AR and VR is that in the application, AR displays the virtual objects in front of the user's vision in the real environment, while VR allows users to immerse themselves in the virtual world and interact with the virtual objects (Chan, 2022, p. 12460). In this context, VR is more immersive than AR as it allows users to enter a completely new environment. In addition, VR platforms or environments are completely artificial, so users have less control over what happens compared to AR platforms or environments.

Furthermore, the last form of XR is mixed reality (MR), which is the mix of a real environment with virtual stimuli. Figure 1 shows that, "MR is a hybrid technology where the real world merges with virtual

stimuli" (Gyawali, 2022, p.1.). MR is therefore a term that combines both AR and VR by combining computerised components with real objects in a cross-genus environment, also called a hybrid environment, achieved through the specialised hardware and tools of MR innovation. To summarise the three terms of XR, AR places the virtual in the users' real environment, while VR places users in the virtual environment. MR brings both together.

Figure 1

Reality-virtuality continuum

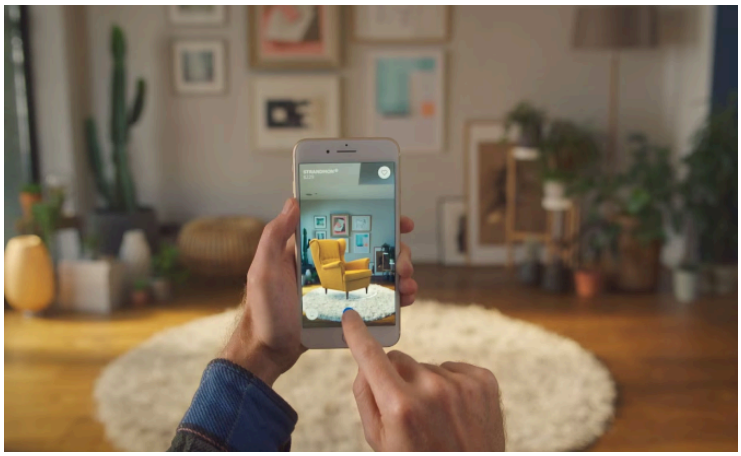


Source: Gyawali, 2022, p.2

When the realities contained in XR are analysed one by one: Figure 2 indicates that AR, provides the users a visualisation of a product integrated into a real environment with its static digital information.

Figure 2

The example of augmented reality

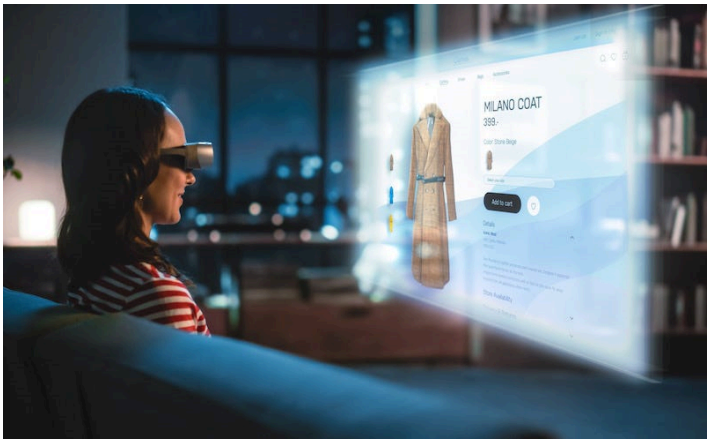


Source: IKEA, 2017

As can be seen in Figure 3, VR allows the users to experience the product in a digitally generated interactive virtual environment.

Figure 3

The example of virtual reality



Source: Fsstudio, 2021

MR, on the other hand, allows the users to interact with the product having responsive virtual elements that are integrated into the real environment, as can be seen in Figure 4 below.

Figure 4

The example of mixed reality

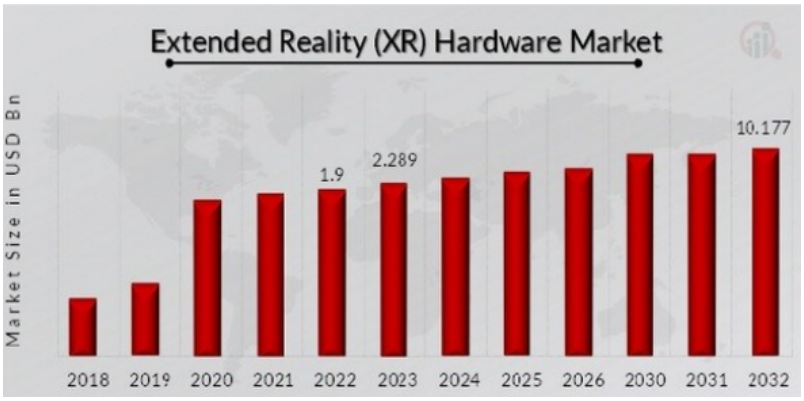


Source: Rwizen Technologies, 2023

The market for XR hardware, which consists of wearable and spatial technology devices and their accessories, is in high demand globally. For example, as can be seen in Figure 5, the XR hardware market, which is the component of wearable and spatial technological devices and accessories with XR capability, is valued at 1.9 billion dollars (USD) in 2022. The XR hardware market industry is projected to grow from USD 2.289 billion in 2023 to USD 10.177 billion by 2032, exhibiting a compound annual growth rate (CAGR) of 20.50% during the period between 2024 and 2032. In light of this data, it is understood that the growing interest in technologies such as MR, AR, and VR, and the increasing adoption in the e-commerce and retail sector have become the key drivers driving the growth of the market.

Figure 5

Extended reality hardware market



Source: Dhapte, 2024

The Psychology of Advertising

Since ancient times, people have used various advertising strategies to promote, publicise or sell something. The history of advertising broadcasting, which is divided into two main periods as the "pre-market" and "mass communication" period on the historical plane, has evolved in the light of technological developments, the evolution of humanity and the development of civilisation together. Communication tools that have changed and developed with the development of human civilisation have also affected advertising

in every period (Taşkıran, 2024, p.390). The roots of advertising in human civilisation and the history of communication go back thousands of years. According to Kotler and Armstrong (2012, p.436), advertising, which can be traced back to the earliest stages of human history, has a deep historical background.

The role of advertising is not only to create awareness and provide information but, also to shape the desires, preferences and attitudes of its audience, thus generating sales and meeting social needs (Cooper 1993, p.248). The universally accepted perception of advertising is that it is a demand-supporting device. Accordingly, advertisements are sales-generating not only for brands but also for product categories. According to Jones (1990, pp.45-46), "advertising makes two contributions to society: First, it influences the individual manufacturer's sales to some degree. The second contribution of advertising is its substantial subsidy to the media, a subsidy that is overwhelmingly, although not completely, benevolent in social effects". Therefore, advertising first impacts the overall level of economic activity. Second, advertisers invest in advertising in the media to boost their own sales while advertising expenditures also finance the media. Thus, the media's functions to entertain, inform etc. maintain because of advertising revenue.

According to Nairn and Fine (2008, p. 447), it is objectionable that advertisements condition individuals to change their attitudes, thus leading to the manipulation of behaviour, "persuading" individuals by influencing them and changing their subconscious perception, especially those who have not yet reached adolescence. The theoretical underpinnings of this objection stem from the field of developmental cognitive psychology, with the work of Jean Piaget in particular. Later, Deborah Roedder John's analyses of child consumer socialisation and children's relationship with commercial communication reinforced the debate against advertisements. In addition, the analytics on the link between ads and consumers have become the milestones of the psychology of advertising. Thus, theories of advertising have developed through cognitive psychology and social psychology. In this direction, the first researches have been made on the studies of consumer behaviour, consumer psychology, the psychology of consumption and children's consumer behaviour. All these studies have been analysed under the combination of not only psychology but also communication theories. On the other hand, according to the literature review, the psychology of advertising, which is a part of media psychology, does not only conduct research on consumers or consumption like other advertising researches mentioned above, but also tries to understand and examine the psychological and social elements in the communication of individuals with the world around them, provided that it is mostly through technological means (Harris & Sanborn, 2014, pp.137-139).

The Difference Between Consumer Psychology and The Psychology of Advertising

According to the dictionary of the American Psychological Association (APA), the main difference between the psychology of advertising and consumer psychology is stated below:

- The psychology of advertising is "the study of the psychological impact that advertisements in various media have on prospective buyers and of the factors contributing to their effectiveness, including different presentation techniques and physical and technological characteristic" (American Psychological Association, n.d.).
- On the other hand, consumer psychology is "the branch of psychology that studies the behaviour of individuals as consumers and the marketing and communication techniques used to influence consumer decisions" (American Psychological Association, n.d.).

The psychology of advertising studies on the psychological process resulted from the ads such as perception, illusions of apperception, mental imaginary, feeling and emotions, the habit of reading advertising, and progressive thinking (Scott, 1921, p.V). In this direction, the psychology of advertising aims to identify the effects of advertising at the individual level. It "investigates intrapersonal, interpersonal and

group-level psychological processes responsible for relationship between advertising stimuli and consumer responses" (Pitters, 2010).

In the literature review, it has been observed that some papers which are related both consumer psychology and the psychology of advertising, are used at the same approach in a wrong way. However, there is a pivotal difference between two similar fields. Consumer psychology aims to understand and evaluate consumer, its behaviour and the decision-making process. In this sense, consumer psychology, as a different field, plays an important role in promoting the influence of the ads and developing advertising creativity to influence the current consumer psychology (Zhai, 2023, p.1). In this respect, the most important point where consumer psychology differs from the psychology of advertising is that consumer psychology conducts studies that are useful for marketers and advertisers. For example, it deals with the psychological processes in the consumer before buying a product and the psychological processes after buying a product. Therefore, such studies are useful for professionals working in the field of marketing and advertising (e.g., research by Kitson, 1921; Twedt, 1965; Förster, 2004; Loken, 2006; Aslan, 2013; Karaman, 2021; Zhai, 2023). In addition, consumer psychology scrutinises not only the effects of advertising, but also all issues involving the psychological processes that influence consumer behaviour. Unlike consumer psychology, advertising psychology examines how and through which psychological processes advertisements affect people and the psychological effects caused by advertisements (e.g., research by Scott, 1921; Alwitt & Mitchell, 1985; Nairn & Fine, 2008; Fennis & Stroebe, 2010). And, it has not any role in stimulating the development of advertising creativity in the contrast of consumer psychology. On the other hand, according to studies analysed in the literature, it has been seen that the mutual concepts that are studied by these two multidisciplinary fields, is consumer behaviour and consumer attitudes.

In the light of the literature review of the studies on the psychology of advertising, it has been observed that there are deficiencies in analysing these studies in line with today's communication tools and socio-communication dimensions. Therefore, this study reveals that the psychology of advertising can be analysed from two perspectives: a psychological perspective and a socio-communicative perspective. The psychological perspective aims to determine the psychological process caused by advertisements, while the socio-communicative perspective aims to determine the characteristics and effects of advertisements both at the individual level and at the societal level.

Table 1

Research Context of the Psychology of Advertising

Psychological Perspective	Socio-Communicative Perspective
Perception	Persuasion
Memory	Verbal and Non-Vernal Communication
Emotions	Audio, Visual, and Written Contents
Habits	Social Interaction
Mental Imagery	Social Status
Attitudes	Marketing and Brand Communication
Cognitive and Behavioural Patterns	Mass Media and New Media

Note. Table 1, created for the first time in this study, reveals the research context of advertising psychology from two different perspectives.

Analysis of XR Advertising

In addition to the systematic literature review, this study has analysed images of XR ads seen by users to identify and detect the types of XR ads and, their effects on users in the context of the psychology of

advertising. The analysis was conducted as a descriptive qualitative research with purposive sampling in line with the method of semiotic analysis.

As both a theory and a methodology, semiotics is concerned with how meaning is constructed and how signs are represented. Saussure and Peirce, the pioneers of semiotics, conducted studies that laid the foundations of semiotics. Saussure emphasises the social function of semiotics, while Peirce emphasises its logical function (Guiraud, 1994, p. 18). According to Saussure (1976, p.162), meaning arises from difference and every concept has a distinctive quality. He considers signs on two planes: the signifier (the physical presence of the sign) and the signified (the mental presence of the sign). Saussure considers the signifier as sound, image and the signified as a concept. In this context, while the signifier is shaped according to the physical or sensory object, the signified is shaped according to the psychological object (Benedictis, 2012, p.6). Moreover, Saussure, without separating signifier and signified, points out that the two acquire meaning together in a relational or reciprocal way without separating signifier and signified (Berger, 2012, p.82). Accordingly, this study has analysed the images of XR ads in the context of signifier and signified.

The research questions of the analysis are as follows:

- How are the images simulated in ads created by XR technology?
- What do the images in the XR ads stimulate psychologically?

In line with the research questions and purpose, the purposive samples of the analysis have been limited to four types of XR ads based on their prevalence in the advertising industry: The first example is related to AR Advertising. The second example is about AR in Out-Of-Home advertising. The third one is VR Experiential Advertising. The last one is In-Game Advertising in VR. On the other hand, the use of MR Advertising is not yet widespread today so it has not been included to be analysed for this study.

AR Advertising, which is the first example in this study, refers to advertising powered by AR technology describing the technology of visual interaction between virtual content and a real environment. In the context of AR advertising, the QR codes direct consumers to the content. Thus, consumers can readily watch product videos with the QR reader program they install on their smartphones. In this way, consumers can watch advertising content anywhere and anytime (Koca & Demir, 2022, p.27). According to marketing and advertising professionals: "The consumers are attracted by creative, interesting, and high-quality AR advertising", "AR advertising provides a user experience that is way more authentic and engaging", "AR advertising helps companies generate more sales and have an edge over competing companies" (Zhang & Li, 2023, pp.125-126). In this direction, the advertising of the real estate company in Figure 6, has been analysed as an example for AR advertising.

AR in Out-Of-Home, the second example in the study, refers to the Out-Of-Home (OOH) advertising with the combination of AR technology. It is known that OOH is an advertising type that can easily reach consumers while they are outside their homes. Digital displays, transit hubs, billboards, bus shelters, and murals are examples of OHH advertising. Today, the integration of AR in OHH advertising has started to create memorable brand experiences, boost brand recall, and increase customer engagement (Innomate, 2025). In this direction, as an example of this type of advertisement, the Burger King advertisement in Figure 7, has been analysed in the study.

VR Experiential Advertising, which is the third example of the study, is the integration of virtual reality technology with experiential marketing. In other words, "VR experiential advertising"[1] refers to a type of advertising that has the applicability of experiential marketing to virtual environments (Liu & Chen, 2006;

[1] In the literature, this concept is referred to as "virtual experiential marketing". However, advertising is a strategy used by marketing, so the term "virtual experiential advertising" is used here instead of "virtual experiential marketing".

as cited in Altun, 2021, pp.32-33). Virtual reality is designed to make users believe it is as real as possible. Therefore, the impact of a product's experience in a virtual environment is also memorable. With this understanding, as an example for the VR experiential advertising, the KIA advertisement has been analysed in Figure 8.

In-Game Advertising in VR refers to the combination of in-game advertising and virtual reality. It is known that in-game advertising refers to the advertisements appearing in the games. In other words, in-game advertising is a brand placement in computer and video games to ensure brand recall. (Nelson 2002, p.1). In this sense, while "in-game advertising" allows gamers to only recall the brand, "in-game advertising in VR" enables gamers to experience the brand as if it is real that is reinforcing brand recall much more. Accordingly, Coca-Cola has been analysed in Figure 9 as an example for the in-game advertising in VR.

Figure 6

AR advertising



Note. Figure 6 shows a real estate advertisement. Here, using the QR code created for the AR technology to work, people can check every detail of the property they want without going out. According to the brochure, a house with written features is the signifier. On the other hand, the signified powered by AR, is a fully decorated new home. Thus, the signified expresses that AR advertising here makes home buyers not only imagine the home over the brochure, but also make them walk around in the house as it really is.

Figure 7

AR in out-of-home advertising



Note. In the AR advertising of Burger King (in Figure 7), it is seen an outdoor display advertising unit. The poster displayed in the unit, advertises the "Whopper burger" with the slogan of "IT'S NOT A SECRET IT'S REAL FIRE". It is also seen underneath the image of the Whopper burger, a QR code with a small note saying "IF YOU DON'T BELIEVE US, SCAN AND FIND US". Here, the poster directs the people to scan the code to understand the advertising message. When they scan the QR code through AR technology on their smartphones, they see smoke coming out of the display unit. Besides, the smoke indicates the direction of the nearest Burger King branch with a note saying "FOLLOW THE SMOKE TO FIND A BURGER KING". In this AR advertising, the signifier is the visual of the Whopper burger in the display unit, on the other hand, the signified is the nearest Burger King branch. The signified tells us that this burger advertising is not only a display advertisement, but also a navigator to reach the nearest Burger King branch and get the real burger which is steaming hot.

Figure 8

VR experiential advertising



Note. Figure 8 shows just a scene of the experiential marketing that is experienced only by VR headsets. In this sense, it is a part of the experiential marketing campaign. KIA designed an experiential stand at London Waterloo Station to showcase the new car model[2]. The aim was to capture the attention of the daily visitors of the station. Using VR technology, KIA enabled visitors to experience driving the car and learn more about its new car model. In this direction, according to one scene of the visual test driving, the signifier is the car with the KIA logo on the road. On the other hand, the signified is the test driving experience like it is real.

[2]KIA's advertising campaing: https://www.spaceandpeople.co.uk/kia-immersive-vr-marketing-waterloo

Figure 9

In-game advertising in VR



Note. In-game advertising is one of the most used types of advertising to capture the young target market in particular. Figure 9 indicates a scene of Shenmue, which is a widespread action video game. The producers of the game released a new version compatible with the VR technology. Thus, the content of the video game in VR became much more immersive than that in desktop video games. With this understanding, according to the scene where Coca-Cola advertises, the signifier is the game hero drinking a coke near the Coca-Cola machine. The signified is Coca-Cola is the preferred juice even in the most action times by the game hero, in other words by the players.

The Findings analysed in line with the research questions are as follows:

- The images in the AR technologies (as can be seen in Figure 6 and Figure 7) are simulated through QR codes.
- The images in the VR technologies (as can be seen in Figure 8 and Figure 9) are simulated through VR headsets.
- The images in the XR ads stimulate users to have virtual experiences in both virtual and real environments. These imagined virtual experiences make users psychologically feel that they are experiencing the experience as if it is real.

Criticism of XR Technologies and Advertisements

Exchange Value of Technology

The use of technology aims to make human beings live more comfortably and safely. However, because of the way the technological structure is organised, it tends to be totalitarian today. According to Brown (1998, p.110), technology that can reach the furthest reaches of society, has been created to create false needs, to create new markets and to further colonise society through these devices. In the light of C-M (commodity-money) exchange value of Marx (2011, p.135), the technological devices produced in a capitalist environment are controlled by a small minority who have the power to sell them to others. Technological devices that fulfil or facilitate human needs, are given the exchange value of commodities in the capitalist environment and thus the power to dominate other commodities. This power, in turn, gives the minority that owns the technological devices the power to determine life. Therefore, each new technological development reinforces the hegemony created in the capitalist environment.

In this context, XR technologies that are expected to make life easier, are the new products created in the capitalist environment to be sold to consumers. According to the market analyses today, The XR market size reached USD 157.44 billion in 2025, and is anticipated to reach USD 865.36 billion by 2030. It indicates that CAGR of 40.61% during the period between 2025 and 2030 (Mordor Intelligence, 2025). This report indicates that XR technologies have become one of the fastest growing markets, spanning the fields of health, gaming,

engineering, and individual marketing. Therefore, it is understood that the advertising industry as a slice of this market, reinforces the commodity-money exchange value of products through XR technologies.

Hegemony Created by Technology

Today, the consciousness industry easily implements the process of hegemony and supports the spread of the process by making it effective on the agenda. The practices of consent and acquiescence in everyday life practices are now practised spontaneously. In line with this spontaneous legitimate acceptance, a space is created where positions are maintained by acting as if there is a legitimate agreement between the ruler and the ruled. The structure is maintained with "doxa", that is, unspoken, unthinking opinions that are accepted as normal. With the help of "doxa" word, which is the point of view of the rulers, they ensure consensus, common opinion, as if it exists by itself, by everyone (Bourdieu, 1995, pp.128-136). The most important element that ensures this hegemonic relationship between the ruler and the ruled in everyday life practices is, technology. Therefore, technology enables the transmission of this hegemonic language.

Considering instrumentalization theory, XR technologies become a tool for creating hegemony, while XR ads become a pratic of this tool reproducing doxes that transmit not only economic but also cultural hegemonic language. When conducted with the analyses in the previous section, it is seen that each advertising with virtual stimulants and virtual environments creates, economic hegemony to sell the product produced by global enterprises. On the other hand, as seen in the example of in-game advertising in VR, XR ads consolidate the cultural hegemony.

Technological Determinism

According to Horkheimer (1998, p.123), the increase in freedom today has changed the nature of freedom. For example, a person who starts driving an automobile instead of riding a horse thinks that he has become more free. However, it is not us who drive a car, but the laws and rules we have to obey. XR technologies have brought about just such a change. Unfortunately, while using XR technology gives the user a sense of freedom with virtual stimuli and environments, it also increases the domination of the laws and rules that I have to obey. Technological developments have changed the nature of freedom and the advantages obtained through the use of technological devices which are characterised as an increase in freedom, have become various rules that must be followed within a set of rules shaped by the industry. This is based on technological determinism. Technological determinism is now pervasive in every field. Technology, which is expected to find a solution to every problem, can not provide a complete solution to everything. Moreover, it causes new problems to emerge (Çelik, 2018, p.63). In this direction, because of technological devices, people become passive or isolated from society. For example, especially today's technological devices make people passive or isolate them from society. Technology, which has become an important factor in alienation, affects people's inner world, shapes their mental thinking activities and poses a threat to their liberation.

In the direction of the psychological dimension, today it is fact that technological determinism boosts the digital depersonalisation and de-realisation. The psychological experiments that VR induces the symptoms depersonalisation and de-realisation, confirm this opinion (Peckmann et al., 2022, p.1). With this view, the next section handles the psychological effects of XR Ads.

Psychological Effects of XR Advertisings as a Disruptive Marketing Strategy

When the term "disruptive" is examined in the literature review, it is seen that there are many concepts related to the term, from disruptive technologies to disruptive marketing and disruptive strategy and product. The beginning of this terminology is the "disruptive technology" defined and later changed as "disruptive innovation" by Clayton Christensen. According to Christensen, disruptive innovation is " a process

by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors" (Bower & Christensen, 1995; as cited in Hardman et al., 2013, p.2). Bower and Christensen (1995, p. 47) explain that disruptive technological innovations directly affect companies' revenue and cost structures, so the established companies find disruptive technologies financially unattractive. Despite their hesitations, the global market competition directs the companies to technological transformation as seen in the examples of disruptive technologies, disruptive innovations, disruptive products, disruptive marketing, disruptive strategies and so on.

In conclusion, when all of the above-mentioned "disruptive" is considered in a single concept, it refers to a process in which some companies go bankrupt while others become global powers. In this respect, "disruptive marketing strategy" refers to challenging and reshaping the traditional marketing practices of the companies to stand out in the industry. Conceptually, "disruptive marketing strategy is a process of doing marketing in a very innovative way" to capture the attention of consumers (Parth, 2020, p.85). In line with this definition, it is seen that disruptive technological innovations play an effective role in disruptive marketing strategies. In this context, disruptive technological innovations reshape the current marketing strategies and create new ones.

What has been explained so far is the explanation of the concept of disruptive in terms of businesses. In contrast to marketing and business terminology, this study examined disruptive marketing strategy through the XR advertisements and revealed the psychological effects on consumers in line with the ad analyses above.

As XR advertisements become more mainstream, it is important to understand their potential impacts on consumers. Because XR advertisements, which are marketing strategies of the disruptive technological innovations, have started to transform the customers as well as the companies. The problem here is that these ads have the ability to provide consumers with highly realistic experiences. In this direction, both neurological and psychological parameters can easily affect the consumers and the child consumers in particular. Neurologically, broadcasting of the ads with XR technology can cause consumers to experience vertigo, nausea and cyber-sickness or simulator sickness (Jones, 1996; Mittelstaedt et al., 2019; as cited in Lavoi et al., 2021, p.70).

On the other hand, the psychological impacts identified in line with the analyses conducted in this study may, lead to the following:

- **Delusion Between Real and Virtual Perceptions**

XR ads can disconnect consumers from their own reality, so that they can easily lose their true perception of a brand or product and they can perceive the perfect virtual version as real instead of the real thing. Accordingly, by creating and presenting virtual stimuli and environments, XR ads as a disruptive marketing strategy manipulate consumers' perceptions much more easily than traditional marketing and advertising strategies[3].

- **Psychological Persuasion**

Persuasion, as it is known, is the sine qua non-of advertising. In this direction, the simulated contents of XR ads shown as real can easily persuade the consumers compared with the traditional advertising technics[4].

[3] See Hillier and Sethi (2013) for the research on delusion in virtual reality.

[4] See Jayawardena et al. (2023) for the persuasion effects of AR and VR ads.

- **Negative Affective Experience**

Negative experiences resulted especially from VR experiential advertising and in-game advertising in VR. For example, a bad experience test driving in a virtual environment can cause negative emotional consequences on consumers in a real environment[5]. This may lead to the formation of phobias in individuals.

- **Cognitive and Behavioural Changings**

As can be seen in the analysis, each example offers users a virtual experience. In this direction, XR ads are a digital experiential marketing strategy as a disruptive marketing strategy. Accordingly, just as disruptive technological innovations change and transform companies, they also change and transform consumers psychologically, socially and economically. In the context of psychological elements, the stimulants such as motivations, emotions, perceptions, influence the cognitive processes. Morever, stimulated cognitions trigger the behaviours[6]. With this understanding, in line with the psychology of advertising, the effect of the virtual consumer experience leads to cognitive and behavioural changes in consumers and directs them towards the purpose of the advertisement.

Conclusion

As can be seen, this study has scrutinised the concept of the psychology of advertising and XR ads, analysed XR ads and revealed their psychological impacts on consumers. In addition, unlike other studies in the literature review, this study has for the first time analysed the psychology of advertising from two perspectives, a psychological perspective and a socio-communicative perspective, in order to examine and reveal the psychological and social effects of advertisements. Morever, despite the similarities between the psychology of advertising and consumer psychology, this study has for the first time demonstrated an important distinction between two fields: It has been observed in the literature review that even if in critical papers, consumer psychology studies mostly highlight how marketers and advertisers psychologically influence the cognitive and behavioural process of consumers, how they persuade the consumers with advertising creativity and different strategies. With this understanding, it has been seen that the studies related to consumer psychology are useful for advertisers and marketers. In contrast to consumer psychology, the psychology of advertising studies, in line with their purpose, do not promote how marketers and advertisers affect the consumers, but they focus on the psychological effects caused by advertisements on consumers at the individual level. In this regard, this study has clarified the distinction between two research fields, the psychology of advertising and consumer psychology.

The analyses of XR ad examples in the study have indicated that XR ads are based on the experiential marketing powered by virtual stimulants: In the first example of XR advertising (Figure 6) in the study, it is seen that AR advertising offers consumers a virtual tour of the house without going outside, provides tour guiding for consumers and allows them to see all the details of the fully decorated house. In a way, AR advertising offers a virtual experience in a real environment for consumers. The second example (Figure 7) in the study on AR in OOH advertising, not only offers the experience of a freshly cooked burger with virtual smoke stimuli, but also directs consumers to the nearest Burger King branch. In this sense, AR in OOH advertising offers virtual experiences in a real environment outside the home. The third example (Figure 8) in the study on VR experiential advertising, as the name implies, offers consumers a virtual test drive experience in a virtual environment through VR hardware. The last one (Figure 9) related to in-game advertising in VR allows, gamers to experience how they, as a game character, might feel after drinking a coke in a virtual environment. In this context, the VR advertisement examples in Figures 8 and 9 offer brand

[5] See Lavoie et al. (2021) for the study about the emotional consequences of VR gameplay.

[6] See Toates (2004) for cognition process and behavior changing.

experiences in non-real environments to consumers as if it is real. Besides, it has been understood in the study that the images in the AR ads (as can be seen in Figure 6 and Figure 7) are simulated through QR codes while the images in the VR ads (as can be seen in Figure 8 and Figure 9) are simulated through VR hardware like headsets. On the other hand, it has been observed that the mutual purpose of XR ads is to create virtual experiences in both viral and real environments for consumers.

According to the results of the analysis mentioned above, this study has identified their effects in the context of the psychology of advertising: First of all, all examples in the study may cause consumers to delusion between real and virtual. Second, advertisements can easily psychologically persuade consumers through this delusion created by XR technology. Third, the ads that are based on virtual experiences like test driving example in the study, may result in a negative affective experience. Finally, XR advertisements have a much greater cognitive and behavioural impact on consumers than traditional advertisements, so they achieve their goals more easily.

In addition to the analyses of XR advertisements, this study has also presented a critical approach to the XR technologies and XR advertisements from three dimensions; the exchange value of technology, hegemony over technology and technological determinism.

As a result, it has been understood in line with the purpose of this study that XR advertising as a disruptive strategy of experiential marketing, which is designed to be one step ahead of the market competition, can cause psychologically negative consequences on individuals. As we will frequently see this type of advertising, XR advertising in other words and the types of advertisements in which disruptive technological innovations are used more and more, the spread of the analyses examined through the psychology of advertising as done in this study, is considered important. Therefore, this study suggests that both communication and psychology academics should work together in order to identify other possible disruptive effects resulting from XR advertisings and to be able to take legal measures to protect not only adult but also child consumers in particular.

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References | Kaynakça

Adelakun, O.J., Oyedokun, A., & Daramola, A. (2015). Analysis of the effect of advertising on sales and profitability of company. *International Journal of Novel Research in Marketing Management and Economics*, *2*(3): 81-90.

Alnagrat, A., Ismail, R.C., Idrus, S.Z.S., & Alfaqi, R.M.A. (2022). A review of extended reality (xr) technologies in the future of human education: Current Trend and future opportunity. *Journal of Human Reproductive Sciences, 1*(2): 81-96. https://doi.org/10.11113/humentech.v1n2.27.

Altun, D. (2021). *The effect of virtual reality experiential marketing on purchase intent: An experimental study*. Ankara: Gece Kitaplığı.

Alwitt, L. F., & Mitchell, A.A. (Eds.). (1985). *Psychological processes and advertising effects: Theory, research and application*. New Jersey: Lawrence Erlbaum Associates Publishers.

American Psychological Association.(n.d.).Advertising psychology.In *APA dictionary of psychology*. Retrieved April 14,2025,from https://dictionary.apa.org/advertising-psychology.

American Psychological Association.(n.d.).Consumer psychology.In *APA dictionary of psychology*. Retrieved April 14,2025,from https://dictionary.apa.org/consumer-psychology.

Aslan, V. (2013).Reklam iletilerinde tüketici davranışlarını belirleyen psikolojik etmenler: Üniversitelerin gazete reklamları uygulama örneği. *The Turkish Online Journal of Design, Art and Communication*, *3*(3): 9-17.

Azuma, R. T. (1997). A survey of augmented reality. *Teleoperators and Virtual Environments, 6*(4):355-385.

Babacan, M. (2012). *Nedir bu reklam?,* 2nd Ed., İstanbul: Beta Yayınevi.

Basev, S.E. (2023). Virtual Reality Technology and Changing ads: The lipton case. *TRT Akademi, 8*(17):200-2016.

Berger, A.A. (2012). *Kültür eleştirisi: Kültürel kavramlara giriş*. (Ö. Emir, Trans.). İstanbul: Pinhan Yayınevi.

Benedictis, R. D. (2012). *Wordly wise: The semiotics of discourse in dante's commedia*. New York: Peter Lang Publishing.

Bir. A. A. (1988). *Dünyada ve Türkiye'de reklamcılık*. İstanbul: Bilgi Yayınevi.

Bower, J. L., & Christensen, C.M. (1995). Disruptive technologies: Catching the wave. *Harvard Business Review,* (January-February):43-53.

Bourdieu, P. (1995). *Pratik nedenler*. (H. Tufan, Trans.). İstanbul: Kesit Yayıncılık.

Brown, B. (1989). *Marks, Freud ve günlük hayatın eleştirisi.* (Y. Alagon, Trans.). İstanbul: Ayrıntı.

Chan, V.S., Haron, H.N.H., Isham, M.I.B.M., & Mohamed, F.B. (2022). VR and AR virtual welding for psychomotor skills: A systematic review. *Multimedia Tools and Applications,* 81: 12459-12493.https://doi.org/10.1007/s11042-022-12293-5.

Cooper, R. G. (1993). *Winning at new products: Accelerating the process from idea to launch*, 2nd Ed., MA: Perseus Books.

Çelik, H. (2018). *Dil ve yeni medya*. İstanbul: Doğu Kitabevi.

Dhapte,A.(2024,July 9).*Extended reality (XR) hardware market research report*.Retrieved from https://www.marketresearchfuture.com/reports/extended-reality-xr-hardware-market-19263.

Elden, M., Ulukök, Ö., & Yeygel, S. (2005). *Şimdi reklamlar*. İstanbul: İletişim Yayınları.

Fennis, B. M., & Stroebe, W. (2010).*The psychology of advertising*. London: Psychology Press.

Förster, J. (2004). How body feedback influences consumers' evaluation of products? *Journal of Consumer Psychology*, 14: 415-425.

Fsstudio. (2021, September 30). *How AR, VR, and 3d product visualization are transforming the e-commerce customer experience*. Website Post. file:///C:\Users\Gonca\Downloads\Retrieved%20from%20https:\fsstudio.com\how-ar-vr-and-3d-product-visualization-are-transforming-the-e-commerce-customer-experience\

Guiraud, P. (1994). *Göstergebilim*. (M. Yalçın, Trans.). Ankara: İmge Kitapevi.

Güz, H. (2014). Reklam stratejisi ve reklam stratejisini etkileyen unsurlar. *Selçuk İletişim*, *1*(4):20-28.

Gyawali,D.(2022).Mixed reality: Interface of the future. *Computer Science*, https://doi.org/10. 48550/arXiv.2309.00819.

Hardman, S., Wilckens, R.S., & Horst. D.V.D. (2013). Disruptive innovations: The case for hydrogen fuel cells and battery electric vehicles. *International Journal of Hydrogen Energy, 38* (35), 1-14.

Harris, R.J., & Sanborn, F.W. (2014). *A cognitive psychology of mass communication,* 6th Ed., New York: Routledge.

Hatiboğlu, Z. (1993). *Temel pazarlama*. İstanbul: BETA.

Hillier, B.,Sethi, F. (2013). Two case reports: 'delusions'arising in virtual reality. *Journal of Psychiatric Intensive Care*, *10*(1):51-56.

Jayawardena, N.,Thaichon, P., Quach, S., & Razzaq, A. (2023). The persuasion effects of virtual reality (VR) and augmented reality (AR) video advertisements: A conceptual review. *Journal of Business Research*, *160* (6): 1-17.

IKEA. (2017, September 12). *IKEA place app launched to help people virtually place furniture at home.* Inter IKEA Newsroom. Retrieved from "https://www.ikea.com/global/en/newsroom/innovation/ikea-launches-ikea-place-a-new-app-that-allows-people-to-virtually-place-furniture-in-their-home-170912/

Innomate. (2025, January 18). *Transforming OOH advertising with augmented reality*. Retrieved from https://innomate.ar/transforming-ooh-advertising-with-augmented-reality/

Jones, J.P. (1990). Advertising: Strong force or weak force? A dilemma for higher education. *Syracuse Scholar, 10* (1):45-56.

Karaman, D. (2021). Tüketici satın alma karar sürecinde etkili olan duygular ve nedenlerin kuşaklar kapsamında incelenmesi. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 45: 107-119.

Kitson, H. D. (1921). *The mind of buyer: The psychology of selling*. New York: Macmillan.

Koca, S., Demir, Z.A. (2022). Augmented reality and transforming advertising. *Contemporary Issues of Communication, 1*(1):23-30.

Kotler, P., & Armstrong, G. (2012). *Principles of marketing*. Harlow: Pearson.

Lavoie, R., Main, K.J., King, C., & King. D. (2021). Virtual experience, real consequences: the potential negative emotional consequences of virtual reality gameplay. *Virtual Reality,* 25: 69-81. https://doi.org/10.1007/s10055-020-00440-y.

Loken, B. (2006). Consumer psychology: Categorization, inferences, affect, and persuasion. *Annual Review of Psychology*, *57* (1): 453-485.

Marx, K. (2011). *Kapital I*. (M. Selik & N. Satlıgan, Trans.). İstanbul:Yordam.

Mordor Intelligence. (2025, February 10). *Extended reality (XR) market size, share, growth forecast & industry trends (2025-2030)*. Extended Reality (XR) Market Size. Retrieved from https://www.mordorintelligence.com/industry-reports/extended-reality-xr-market.

Nairn, A., & Fine, C. (2008). Who's messing with my mind? The implications of dual-process models for the ethics of advertising to children. *International Journal of Advertising, 27* (3): 447-470. https://doi.org/10.2501/S0265048708080062.

Nelson, M. R. (2002). Recall of brand placements in computer/video games. *Journal of Advertising Research, 42* (2). https://doi.org/10.2501/JAR-42-2-80-92.

Ogilvy, D. (1989). *Bir reklamcının itirafları*. (S. Yazgan, Trans.). İstanbul: AFA Yayınları.

Parth, S.C. (2020). Disruptive marketing strategy. *Iconic Research and Engineering Journals*, *3* (10):85-88.

Peckmann, C., Kannen, K., Pensel, M.C., Lux, S., Philipsen, A., & Braun, N. (2022). Virtual reality induces symptoms of depersonalization and derealization: A longitudinal randomised control trial. *Computers in Human Behavior*, *131* (107233). https://doi.org/10.1016/j.chb.2022.107233.

Pitters, J.(2010). *Advertising psychology* [PowerPoint slides]. Universität Salzburg. https://pitters.at/ Publikationen/ Werbepsychologie.pdf .

Rwizen Technologies. (2023, March 10). *The impact of virtual reality on in-store shopping revolutionizing the retail experience*. Linkedin. Retrieved from https://www.linkedin.com/pulse/impact-virtual-reality-in-store-shopping-revolutionizing.

Saussure, F. De. (1976). *Cours de linguistique générale*. Paris: Payot Publishing.

Scott, W.D. (1921). *The psychology of advertising ın the theory and practice*. Boston: Small, Maynard & Company.

Şahinaslan, Ö. (2020). Yeni nesil teknolojiler. In G.Telli & S. Aydın (Eds.), *Dijital Dönüşüm* (pp.29-54). İstanbul: Maltepe University Publications.

Taşkiran, İ.B. (2024). Reklamcılığın tarihsel gelişimi. *TRT Akademi, 9* (21):388-405.

Twedt, D. W. (1965).Consumer psychology. *Annual Review of Psychology*, *16* (1): 265-294.

Toates, F. (2004).Cognition, motivation, emotion and action: A dynamic and vulnerable interdependence. *Applied Animal Behavior Science*, *86*(3): 173-204.

Wang, Y.J., & Minor, M. (2008). Validity, reliability and applicability of psychophysiological techniques in marketing research. *Psychology and Marketing*, *25*(2):197-232.https://doi.org/10.1002/mar.

Young, C. (2002). Brain waves, picture sorts, and branding moments. *Journal of Advertising Research*, *42*(4):42-55.

Zhai, Y. (2023). Research on the effect of consumer psychology on advertising creativity communication. *SHS Web Conferences, 158* (02012). https://doi.org/10.1051/shsconf/202315802012.

Zhang, T., & Li, D. (2023). Augmented reality in advertising: An exploratory study. *Journal of Applied Business and Economics, 25*(3): 123-129. https://doi.org/10.33423/jabe.v25i3.6207.