Media & Culture
The Journal of Cultural Studies and Media
Volume:2, Issue:1, Year: 2022

Research Article

To Be Real, or Not To Be Real, That is The Question: A Content Analysis of Augmented Reality Articles in Advertising and Marketing Journals from 2017 to 2021

Damla KARŞU CESUR*

Abstract

This study focuses on 24 published augmented reality (AR) articles in top-tier SSCI indexed advertising and marketing journals with high SJR rankings between 2017 and 2021. Employing a content analysis frame of Yale and Gilly (1988), the study aims to provide insight for further AR-related research that could "augment" the advertising and marketing literature. The findings reveal that most of the current articles were related to consumer behavior and primarily addressed scholars and managers. It is also observed that quantitative methodology and experiments were adopted mainly. The most statistical analysis performed in these articles was meditation analysis, while the research respondents were generally students.

Keywords: Augmented Reality, AR, Advertising, Marketing, Content Analysis, Self-Reflective

Sakarya University,
Department of Public Relations and Advertising,
Research Assistant Dr.,
dkarsu@sakarya.edu.tr,
ORCID ID: 0000-0002-5876-5618

Received: 19.05.2022
Accepted: 17.06.2022

Karşu Cesur, D. (2022). To be real, or not to be real, that is the question: A content analysis of augmented reality articles in advertising and marketing journals from 2017 to 2021. *Media and Culture*, 1(2), 66-86

Medya ve Kültür
Kültürel Çalışmalar ve Medya Dergisi
Cilt:2, Sayı:1, Yıl: 2022

Araştırma Makalesi

Gerçek Olmak ya da Olmamak, İşte Bütün Mesele Bu: Reklamcılık ve Pazarlama Dergilerinde 2017-2021 Yılları Arasında Yayınlanan Artırılmış Gerçeklik (AG) Makalelerine Yönelik İçerik Analizi

Damla KARŞU CESUR*

Özet

Bu çalışma SSCI indeksinde taranan ve en yüksek SRJ sıralamasına sahip reklamcılık ve pazarlama dergileri kapsamında, 2017-2021 yılları arasında yayınlanan ve artırılmış gerçeklik konulu (AG) 24 makaleye odaklanmaktadır. Yale ve Gilly'nin (1988) içerik analizi çerçevesini kullanan araştırmanın amacı, reklam ve pazarlama literatürünü "artırabilecek" AG konulu sonraki çalışmalara içgörü sağlamaktır. Elde edilen bulgular gerçekleştirilen araştırmaların çoğunun tüketici davranışları ile ilgili olduğunu, bunun yanı sıra öncelikli olarak reklam ve pazarlama alanındaki akademisyenler ile uzmanlara aynı anda seslendiğini ortaya koymaktadır. Ayrıca yine bu çalışmalarda ağırlıklı olarak nicel yöntemler benimsenmiş olup, deneyler en önde gelen veri toplama aracı olarak belirmektedir. Söz konusu makalelerde en çok aracılık analizlerinin uygulandığı ve katılımcıların genellikle öğrencilerden oluştuğu anlaşılmaktadır.

* Sakarya Üniversitesi,
Halkla İlişkiler ve Reklamcılık Bölümü,
Araştırma Görevlisi Dr.,
dkarsu@sakarya.edu.tr,
ORCID: 0000-0002-5876-5618

Anahtar Kelimeler: Artırılmış Gerçeklik, AG, Reklamcılık, Pazarlama, İçerik Analizi, Özdüşünümsel

Geliş Tarihi: 19.05.2022
Kabul Tarihi: 17.06.2022

Introduction

Scholars from different disciplines are always interested in the most and least studied subjects in their literature (Kamhawi & Weaver, 2003, p.7). This interest derives from not only funding search but also scholarly responsibility. There is a tight connection between periodical self-reflective studies on scholarly activity and academic maturity (Yoo, Joo, Choi, Reid, & Kim, 2015, p.549; Borgman, 1989, p.585; Kim, Hayes, Avant, & Reid, 2014, p.297). These papers enable the researchers to trace the ideas in the literature and grasp the linkage of previous studies (Potter & Riddle, 2007, p.90). As acknowledged by others (e.g. Yoo, Joo, Choi, Reid, & Kim, 2015; So, 1988; Kim, Hayes, Avant, & Reid; Kim, Hayes, Avant, & Reid, 2014), self-reflective studies make a significant contribution to the development of new ideas, recognition of emphasized and ignored parts of the field, and observation of current trends and future directions in scholarship (Potter & Riddle, 2007, p.90). In other words, self-reflective studies ensure that the researchers join up the dots for further investigation. Therefore, scholars from different disciplines serve several self-reflective studies (Kamhawi & Weaver, 2003; Potter & Riddle, 2007; So, 1988; İçten & Bal, 2017; Alkar & Atasoy, 2020).

This self-reflective study investigates the previous scholarly articles in advertising and marketing literature that covered augmented reality, a relatively new phenomenon in the literature, by conducting a content analysis.

1. Literature Review

1.1. Self-Reflective Studies and Methodology in Advertising and Marketing

Periodical self-reflective studies have been conducted by many advertising and marketing scholars based on the gaining importance of self-reflection in the literature for more than a quarter-century (Yoo, Joo, Choi, Reid, & Kim, 2015, p.550; Kim, Hayes, Avant, & Reid, 2014, p.296). In advertising and marketing, scholarly publications have been investigated through the lenses of various subjects, such as field progression, current trends, and direction (Kim, Hayes, Avant, & Reid, 2014; Yale & Gilly, 1988; Cho & Khang, 2006; Agarwal & Kumar, 2021; Wang & Hu, 2011), methodological investigations (Yoo, Joo, Choi, Reid, & Kim, 2015; Chang, 2017), research replication (Reid, Soley, & Winner, 1981), sources of scholarly publication (Russell & Martin, 1976).

It seems that quantitative techniques, such as content analysis (Chang, 2017; Cho & Khang, 2006; Kim, Hayes, Avant, & Reid, 2014; Potter & Riddle, 2007; Reid, Soley, & Winner, 1981; Russell & Martin, 1976; So, 1988; Yale & Gilly, 1988; Yoo, Joo, Choi, Reid, & Kim, 2015), bibliometric analysis (Agarwal & Kumar, 2021; Punjani, Kumar, & Kadam, 2019; Kim & McMillan, 2008; Fang, Zhang, & Qiu, 2017; Wang & Hu, 2011), meta-analysis (Eisend, 2010; Grewal, Kavanoor, Fern, Costley, & Barnes, 1997; Schmidt & Eisend, 2015; Eisend, 2017; Sethuraman, Tellis, & Briesch, 2011), and surveys (Chang, 2017, p. 3) have been widely employed in self-reflective advertising and marketing studies.

Content analysis encapsulates a coding scheme corresponding to the research questions ascertained from related literature (Harwood & Garry, 2003, p.480). In content analysis, a large volume of data sets is gathered, concerning their content characteristics, in fewer units and categories (Matthews & Ross, 2010, p.395;

Stemler, 2000, p.1). In other words, the content analysis provides data reduction in consideration of this identifiable unit and categories. It is a systematic, replicable, and objective analysis technique, either quantitative or qualitative, that enables scholars to make inferences about the relevant data sets (Berelson, 1952, p.18; Weber, 1990, p.9-12; Stemler, 2000, p.1). Content analysis, predominantly quantitative analysis, has been employed by a series of self-reflective advertising and marketing papers on different subjects (see, Yoo, Joo, Choi, Reid, & Kim, 2015; Reid, Soley, & Winner, 1981; Kim, Hayes, Avant, & Reid, 2014) because of its enabling features in longitudinal analysis of scholarly publications in any particular period. For example, Yale and Gill (1988) reviewed marketing journals from 1976 to 1985 to determine advertising trends via content analysis. Their coding schema included "*complete citation, major topic, area(s), audience addressed (i.e., management, researcher, public policymaker or some combination of the three), and research type (i.e., empirical vs. nonempirical), research design used, the sampled unit used (e.g., children, women, students), and statistical analysis performed*" (Yale & Gill, 1988).

The bibliometric methodology, another methodological approach adopted in self-reflective publications, relies on quantitative analysis of bibliometric data of published documents (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021, p.286) to respond to the questions related to the scholars, scholarly community, and the progression of the field (Borgman, 1989, p.589). Bibliometrics requires the application of mathematical and statistical methods while analyzing scholarly publications such as journals or books (Borgman, 1989, p. 583). The primary techniques of bibliometric analysis are the performance analysis, presenting the contribution of the cited publications, and the science mapping, revealing the citation patterns in a particular field (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021, p.287). These techniques have been applied to several advertising and marketing publications, including diverse research subjects, such as green marketing (Agarwal & Kumar, 2021), trends of puffery in advertising (Punjani, Kumar, & Kadam, 2019), internet advertising (Kim & McMillan, 2008), online classified advertising (Fang, Zhang, & Qiu, 2017) or advertising endorser in marketing (Wang & Hu, 2011).

Meta-analysis offers a comprehensive literature evaluation based on the statistically analyzed empirical findings from prior studies concerning any specific research question or topic (Chang, 2017, p.7; Akgöz, Ercan, & Kan, 2004, p.107; Eisend, 2017, p.22). It relies on analyzing large quantities of scholarly publications in any particular field; likewise, bibliometric analysis. However, meta-analysis differs from bibliometric analysis by summarizing empirical evidence drawn from previous studies (Eisend, 2017, p.21) rather than providing bibliometric data (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021, p.287). With the increasing popularity of meta-analytic studies in social sciences (Eisend, 2010, p.21), meta-analysis has been adopted in some advertising and marketing papers (e.g. Eisend, 2010; Grewal, Kavanoor, Fern, Costley, & Barnes, 1997; Schmidt & Eisend, 2015; Eisend, 2017; Sethuraman, Tellis, & Briesch, 2011).

Surveys have also been conducted to determine the most influential scholarly publication with the sample scholars of any particular discipline, such as advertising

(Chang, 2017, p.3). For example, Beard (2002) identified that the most influential studies in advertising literature covered advertising effect and consumer behavior by conducting surveys on advertising scholars.

This study conducted content analysis to investigate previous scientific articles covering augmented reality in advertising and marketing literature. Therefore, a closer look at augmented reality from the perspective of advertising and marketing was presented for a deeper understanding.

1.2. **The Conceptual Frame: Augmented Reality**

Based on the rapid and continuous growth of technology, our interaction with the physical world (Kesim & Ozarslan, 2012, p.287-298) and our ways of seeing have been changing more than ever in the last 50 years. Today's viewers are different from the first inexperienced spectators of the moving image, who had great enthusiasm and anxiety in the theatre (Bottomore, 1999). Developing technology nowadays lets the blending of computer-generated virtual information and the physical world (Kesim & Ozarslan, 2012, p.298; Akçayır & Akçayır, 2017, p.1), providing more sophisticated experiences than 2-dimensional moving images displayed on a flat surface.

Augmented reality (AR) could be defined as overlapping virtual information (such as graphics, avatars, etc.) onto the physical world, enabling the virtual and physical worlds' coexistence in real-time (Akçayır & Akçayır, 2017, p.1; Kesim & Ozarslan, 2012, p.297; Berryman, 2012, p.213; Carmigniani & Furht, 2011, p.3; Rauschnabel, 2021, p.1). In other words, AR technology superimposes virtual information upon or composites it with the physical world (Azuma et. al. 2001, p.34). Therefore, augmented reality (AR) and virtual reality (VR) are different even though they share the same hardware technology and provide virtual information. The most significant difference is that AR supplies the experience of the appropriately aligned synthetic and physical world simultaneously, while VR thoroughly immerses an observer inside a virtual world (Kesim & Ozarslan, 2012, p.298; Berryman, 2012, p.214; Carmigniani & Furht, 2011: 3; Rauschnabel, 2021, p.1; Wedel, Bigné, & Zhang, 2020, p.443, Azuma, 1997, p. 355-356; Azuma et. al. 2001, p.34).

Berryman (2012, p.213) indicates that the application of AR technology dates back to World War II, like many other communication technologies developed for military purposes in the first stage. Because it was already applied within the Mark III project, developed by the British army in WWII, which enabled radar information to be screened on the windscreen of fighter aircraft and helped the pilot determine which planes nearby were dangerous (Berryman, 2012, p.213). In 1968, Sutherland (1968) argued that placing suitable 2-dimensional images directly on the retina via head-ups displays would cause the illusion of a 3-dimensional effect. However, the concept seems to take the researcher's interest significantly with the paper of Caudell and Mizell (1992) on augmented reality. Their study proposed that aircraft workers wear heads-up displays, which simultaneously embed necessary virtual information in the physical world in manufacturing processes and enhance the vision. In 1997, Azuma discussed the possible field of AR technology such as medical, manufacturing and repair, annotation and visualization, robot path planning, entertainment, and military aircraft for future direction.

The notion of AR has been of great scholarly interest to researchers from numerous fields such as medicine (Ma, Jain, & Anderson, 2014), computer science (Neumann & Cho, 1996; Bimber & Raskar, 2005), education (Akçayır & Akçayır, 2017; Chen, Liu, Cheng, & Huang, 2017; Kesim & Ozarslan, 2012), manufacturing (Ong & Nee, 2004), e-commerce (Yim, Chu, & Sauer, 2017; Heller, Chylinski, de Ruyter, Mahr, & Keeling, 2019; Tan, Chandukala, & Reddy, 2022), cinema (Papagiannis, 2009), and library science (Berryman, 2012) in the last 20 years. With the widespread adoption of smart technologies, scholars have been investigating the opportunities and challenges of AR technology and its future directions (Berryman, 2012, p.216; Yu, Jin, Luo, Lai, & Huang, 2009; Mekni & Lemieux, 2014; Liao, 2019; Hayhurst, 2018).

The recent implementations of AR technology in advertising and marketing practices have led to a tremendous and steady interest in the literature. For example, Kowalczuk, Siepmann, & Adler (2021, p. 359-360) reviewed the current retail literature on AR and identified consumer responses as affective responses (entertainment, attitude toward using, enjoyment, playfulness, flow, application attitude, brand attitude, telepresence, hedonic value, spatial presence, attitude toward adoption AR, hedonic quality, immersion, medium attitude, self-brand connections, inspiration, attitude toward technology, and product liking), cognitive responses (usefulness, ease of use, thoughts, utilitarian value, psychological ownership, decision comfort, self-location, haptic imagery, sense of body, ownership, ownership control, self-explorative engagement, satisfaction, pragmatic quality, trade-off-price, media usefulness, and choice confidence), behavioral responses (purchase, reuse, revisit intention, actual use, post-use, evaluation, post-purchase, use intention, sustainable relationship behavior, WOM intention, time spend on AR, willingness to buy, online or offline patronage intention, online or offline purchase intention, willingness to share personal data, adoption intention), and individual factors (technology anxiety, innovativeness, cognitive innovativeness, involvement, style of processing, awareness of privacy practices, familarity with internet usage, product knowledge, previous media experience, narcissism, perceptual curiosity about tool/product, diversive curiosity, and involvement experitise). Smink, Reijmersdal, & van Noort (2022, p.475) summarized previous studies on AR shopping settings: (1) AR provided positive effects on app responses; (2) positive effects on purchase intention in general; (3) mixed results in brand attitude; (3) moderating effects of user characteristics in a few papers. In AR advertising context, it is observed that AR technology increases the likeability of print ads (Uğur & Apaydın, 2014) and consumers' willingness to pay (Pozharliev, De Angelis, & Rossi, 2022). Additively, respondents find AR inserted print ads more favorable, informative, novel, and compelling (Yaoyuneyong, Foster, Johnson, & Johnson, 2016).

2. Research Method

The objective of this study is to investigate augmented reality papers published between 2017 and 2021 in advertising and marketing journals via content analysis. Recognizing that AR is an immature field in advertising and marketing literature, the present study aims to reveal current trends, issues, and directions for future research.

2.1. Sample

The study focuses on augmented reality articles published in the five years, between 2017 and 2021, in top-tier advertising and marketing journals. The key criterion for journal selection was to be indexed by Social Sciences Citation (SSCI). Therefore, SSCI indexed advertising and marketing journals were sorted within their SRJ 2021 ranking as an indicator of scientific journal prestige (Guerrero-Bote & Moya-Anegón, 2021). We reached 203 journals in total via SCImago Journal & Country Rank portal (2021) in this category. We selected the top 20 advertising and marketing SSCI indexed journals with the highest SJR (see Table 1).

Table 1. Top 20 advertising and marketing SSCI indexed journals with high SJR

Rank	Title	SJR	SJR Quartile	H index	Total Refs.	Total Cites (3years)
1	Journal of Marketing	7,461	Q1	253	5781	2041
2	Journal of Consumer Research	7,117	Q1	194	3860	1470
3	Marketing Science	6,584	Q1	135	2297	863
4	Journal of Marketing Research	5,372	Q1	182	3849	1226
5	International Journal of Information Management	4,584	Q1	132	16896	10690
6	Journal of the Academy of Marketing Science	4,433	Q1	183	5018	2313
7	Academy of Management Perspectives	4,07	Q1	138	3216	846
8	Journal of Public Administration Research and Theory	3,811	Q1	119	2749	773
9	Journal of Interactive Marketing	3,62	Q1	114	2391	1192
10	Journal of Consumer Psychology	3,054	Q1	122	4688	694
11	Journal of Supply Chain Management	3,034	Q1	98	2381	437
12	Quantitative Marketing and Economics	2,882	Q1	34	498	70
13	Public Administration Review	2,788	Q1	149	6921	2023
14	Journal of World Business	2,727	Q1	121	7482	1860
15	Journal of Advertising	2,701	Q1	119	4937	937
16	International Journal of Research in Marketing	2,53	Q1	109	7049	970
17	Journal of Retailing	2,511	Q1	145	4413	876
18	Business Horizons	2,382	Q1	97	2881	2474
19	Journal of Business Research	2,316	Q1	217	84665	19456
20	Journal of Retailing and Consumer Services	2,261	Q1	104	33979	8161

Source: SCImago Journal & Country Rank, 2021

These top 20 advertising and marketing journals were scanned with the keyword of augmented reality. Then we reached 24 published articles between 2017 and 2021 in 10 journals. Accordingly, the sample articles were listed as follows (see Table 2):

Table 2. Research sample

	Year	Journal	Title	Authors	Implication	Theoretical and Conceptual Frameworks
1	2021	International Journal of Information Management	Augmented reality is eating the real-world! The substitution of physical products by holograms	Rauschnabel	The user's acceptance of holographic AR substitution varies in different product categories.	Holistic augmented reality marketing, substitution in AR, consumer characteristics, product characteristics
2	2021	Journal of Advertising	Consumers' use of augmented reality apps: prevalence, user characteristics, and gratifications	Smink, Reijmersdal, & van Noort	AR function is used most frequently within social media and entertainment apps and least frequently for shopping.	Uses and gratifications (U&G) theory, AR App classification, AR App user characteristics
3	2021	Business Horizons	Strategies for the successful implementation of augmented reality	Berman & Pollack	Proposes a six-step process for successful planning and implementation of AR: (1) determining the contribution of AR to marketing objectives; (2) specifying appropriate products, channels, and target markets for AR; (3) choosing AR application types; (4) designing apps; (5) evaluation of alternatives; and (6) measurement of the success.	AR implementation
4	2021	Journal of Business Research	Strategic approaches to augmented reality deployment by luxury brands	Javornik et. al	AR function could enhance the luxury brand experiences and customer journey.	Luxury brand equity, and luxury branding
5	2021	Journal of Business Research	The effect of Augmented Reality on purchase intention of beauty products: The roles of consumers' control	Whang, Song, Choi, & Lee	The experience of AR has a positive effect on purchase intention significantly in the absence of positive feedback from peers.	Telepresence theory, online product presentation, consumers' control, and purchase intention
6	2021	Journal of Business Research	Digitalization as solution to environmental problems? When users rely on augmented reality-recommendation agents	Joerß, Hoffmann, Mai, & Akbar	The AR recommendation agents (AR-RA) can potentially guide consumers to sustainable consumption on a virtual and physical basis.	AR recommendation agent (AR-RA), sustainable consumption, and digital device usage
7	2021	Journal of Business Research	Blending the real world and the virtual world: exploring the role of flow in augmented reality	Barhorst, McLean, Shah, & Mack	There are relationships between vividness, interactivity, novelty, flow, information utility, learning, and enjoyment with the satisfaction of AR shopping experience.	Flow theory, AR interactivity, AR vividness, AR novelty, enjoyment, and elaboration of information
8	2021	Journal of Business Research	Cognitive, affective, and behavioral consumer responses to augmented reality in e-commerce: A comparative study	Kowalczuk, Siepmann, & Adler	Propose a model that connects the consumers' reuse and purchase intention with their responses to the AR features.	Customer journey, AR characteristics, and consumer responses

9	2021	Journal of Business Research	Augmented self - The effects of virtual face augmentation on consumers' self-concept	Javornik, Marder, Pizzetti, & Warlop	Unlike the regular mirror, viewing oneself in an AR mirror affects the ideal-actual attractiveness gap, and the self-esteem level of the consumer is decisive in this effect.	Self-concept and appearance, augmented self, self-esteem, variety-seeking
10	2021	Journal of Business Research	The effects of augmented reality mobile app advertising: Viral marketing via shared social experience	Sung	The AR-based immersive new brand experience positively affects consumer responses.	Experience economy, consumer satisfaction, shared social experience, and brand experience
11	2020	Journal of the Academy of Marketing Science	Seeing eye to eye: social augmented reality and shared decision making in the marketplace	Hilken, Keeling, de Ruyter, Mahr, & Chylinski	Static photos matched with image enhanced text format of social AR increase recommenders' comfort with providing advice and decision makers' likelihood of using the advice	Shared decision-making, and socially situated cognition theory
12	2020	Journal of Advertising	Seeing with the customer's eye: exploring the challenges and opportunities of AR advertising	de Ruyter et. al	Analyzes relevant recent AR ad examples and presents a conceptual case.	Context Mapping, image classification, gaze tracking, real-time analytics, affordance recognition, content matching, customer experience, marketing metrics, and privacy constraints
13	2020	International Journal of Research in Marketing	Virtual and augmented reality: Advancing research in consumer marketing	Wedel, Bigné, & Zhang	Analyzes AR and VR conceptual framework of consumer marketing.	Immersion, presence, attention in VR, consumer experience, application context, customer journey, and VR effectiveness
14	2020	International Journal of Research in Marketing	Transforming the customer experience through new technologies	Hoyer, Kroschke, Schmitt, Kraume, & Shankar	Internet of things (IoT), Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR), and Artificial Intelligence (AI) dramatically transform the shopping journey of the customer.	Customer Experience, VR/MR, virtual assistants, chatbots, and robots, and customer journey
15	2020	Journal of Business Research	Shopping in augmented reality: The effects of spatial presence, personalization and intrusiveness on app and brand responses	Smink, van Reijmersdal, van Noort, & Neijens	Non-Intrusive AR app provides a more realistic and personalized experience and positively affects purchase intention.	Spatial presence, shopping apps, perceived personalization, and perceived intrusiveness
16	2020	Journal of Business Research	The playground effect: How augmented reality drives creative customer engagement	Jessen et. al	Empirically demonstrates the mediation role of customer engagement and creativity between AR and anticipated satisfaction.	Customer purchase journey, customer creativity, and customer satisfaction
17	2019	Journal of Interactive Marketing	What's mine is a hologram? How shared augmented reality augments psychological ownership	Carrozzi et. al	AR customization affects the psychological ownership of AR holograms.	Socially situated cognition, psychological ownership, and AR customization

18	2019	Journal of Retailing	Touching the untouchable: exploring multi-sensory augmented reality in the context of online retailing	Heller, Chylinski, de Ruyter, Mahr, & Keeling	Touch control positively affects the purchase intention of consumers rather than voice control in the context of multisensory augmented reality (m-AR) apps.	Active inference, customer boundary condition, mental intangibility, decision comfort, and behavioral intention
19	2019	Journal of Retailing	Let me imagine that for you: Transforming the retail frontline through augmenting customer cental imagery ability	Heller, Chylinski, de Ruyter, Mahr, & Keeling)	AR function improves decision comfort, motivates positive WOM and facilitates choice of higher value products.	Mental imaginary, customer boundary condition, decision comfort, processing fluency, and behavioral intention
20	2019	Journal of Business Research	"I am not satisfied with my body, so I like augmented reality (AR)": Consumer responses to AR-based product presentations	Yim & Park	Consumers with unfavorable body image perception evaluate AR-based product presentations more positively than traditional Web-based presentations. However, no differences were noticed within the scope of consumers with favorable body image perceptions.	Virtual reality (VR), high body-involving products, interactivity, media irritation, and body image
21	2019	Journal of Business Research	The impact of virtual, augmented and mixed reality technologies on the customer experience	Flavián, Ibáñez-Sánchez, & Orús	Proposes EPI (embodiment, presence, and interactivity) Cube frame for conceptualizing VR, AR, and MR.	VR, MR, reality-virtuality continuum, categorization of reality-virtuality technologies, embodiment, presence, interactivity, customer experience, customer journey, and EPI Cube
22	2018	Journal of Business Research	Antecedents to the adoption of augmented reality smart glasses: A closer look at privacy risks	Rauschnabel, He, & Ro	The risk perception towards personal or other people's privacy affects the adoption of augmented reality smart glasses (ARSG).	ARSGs, privacy, expected benefits, and perceived risks
23	2017	Journal of the Academy of Marketing Science	Augmenting the eye of the beholder: exploring the strategic potential of augmented reality to enhance online service experiences	Hilken, de Ruyter, Chylinski, Mahr, & Keeling	AR augments customer value perceptions.	Spatial presence, utilitarian and hedonic value, behavioral intention, privacy practices, simulated physical control, environmental embedding, and decision comfort
24	2017	Journal of Interactive Marketing	Is augmented reality technology an efective tol for E-commerce an interactivity and vividness perspective	Yim, Chu, & Sauer	AR is more effective than traditional websites. Immersion has a mediating role between interactivity/ vividness and usefulness/ enjoyment in AR.	Functional Mechanisms of AR, immersion, and consumer responses

2.2. Coding Instrument and Procedure

The research variables were established using Yale and Gilly's (1988) content analysis frame as citation number, major issue, target audience, research type, research design, sample set, and statistical analysis performed. In addition to Yale and Gill's (1988) frame, the number of the studies conducted in a single paper was investigated. The researcher (Coder A) and a research assistant (Coder B) with a Ph.D. degree in advertising coded the sample papers in SPSS separately. The coded variables were compared and discussed for the final data set following the coding process.

2.3. Reliability

The Krippendorff's Alpha (ideally $\alpha \geq .800$, but $\alpha \geq .667$ still acceptable) (Krippendorff, 2004) coefficients were calculated to determine the inter-reliability of the coders (Coder A and Coder B).

Table 3. Krippendorff's Alpha coefficients for each variable

Variable	Alpha
Citation	1
Major Issues	0.719
Target Audience	1
Research Type	1
Numbers of the Studies	1
Data Collection Tool	1
Sample Set	1
Statistical Analysis	0.626

Table 3 reveals that the coefficients Krippendorff's Alpha for each variable**,** except the variable of statistical analysis, were above the cut-off points. However, as Jordaan, Wiese, Amade, and de Clercq (2013, p.440) indicate that "*wide variety of statistical techniques used in research may explain the lower reliability results.*" Furthermore, it was noticed that multiple studies and different statistical analyses were adopted in some papers. Therefore, the disagreements were discussed, corrected, and recoded for the final data set.

3. Analyses and Results

The frequency analysis for each variable (citation, major issue, target audience, research type, data collection tool, sample set, and statistical analysis performed) was presented via SPSS.

Citation: The citation number of the studies was extracted from the journals' web pages. The total citation of the papers was 1473, and the most cited paper was "*The impact of virtual, augmented and mixed reality technologies on the customer experience"* by Flavián, Ibáñez-Sánchez, and Orús (2019), had been published in the Journal of Business Research. The most cited five articles, which constituted 59% of the total citation, were presented in Table 4.

Table 4. The most cited articles (top 5)

	Title	Journal	Author &Year	Citation	%
1	The impact of virtual, augmented and mixed reality technologies on the customer experience	Journal of Business Research	Flavián, Ibáñez-Sánchez, & Orús, 2019	257	17,45
2	Is augmented reality technology an efective tool for E-commerce an interactivity and vividness perspective	Journal of Interactive Marketing	Yim, Chu, & Sauer, 2017	233	15,82
3	Augmenting the eye of the beholder: exploring the strategic potential of augmented reality to enhance online service experiences	Journal of the Academy of MarketingScience	Hilken, de Ruyter, Chylinski, Mahr, & Keeling, 2017	171	11,61
4	Antecedents to the adoption of augmented reality smart glasses: A closer look at privacy risks	Journal of Business Research	Rauschnabel, He, & Ro, 2018	118	8,01
5	Transforming the customer experience through new technologies	International Journal of Research in Marketing	Hoyer, Kroschke, Schmitt, Kraume, & Shankar, 2020	95	6,45
Others	-	-	-	599	40,67
Total	-	-	-	1473	100

Major Issues: The major issues were determined as consumer behavior (46%), retailing and e-commerce (17%), marketing (17%), advertising (8%), branding (8%), and environment (4%) in the context of sample article (see Table 5).

Table 5. Major issues

Issue	Frequency	%
Consumer Behavior	11	45,83
Retailing- E-commerce	4	16,67
Marketing	4	16,67
Advertising	2	8,33
Branding	2	8,33
Environment	1	4,17
Total	24	100

Target Audience: It is assumed that the most addressed audience covered scholars and managers together (67%). It was followed by managers (17%), scholars (12%), and educators (4%) (see Table 6).

Table 6. Target audieces of the articles

Target Audience	Frequency	%
Scholars and managers	16	66,67
Managers	4	16,67
Scholars	3	12,50
Educators	1	4,17
Total	24	100

Research Type: The vast majority of the sample articles were based on empirical research (79%), and only five articles were without empirical research (21%).

Table 7. Research type of the articles

Research Type	Frequency	%
Emprical Research	19	79,17
Non-Emprical Research	5	20,83
Total	24	100

Data Collection Tool: The data collection tool varied based on the research method. In some studies, multiple research techniques were employed. It seems that the most prominent data collection tool was the experiment (60%). It was followed by survey (26%), secondary data (10%), and interview (4%).

Table 8. Data collection tool

Data Collection Tool	Frequency	%
Experiment	30	60
Survey	13	26
Secondary Data	5	10
Interview	2	4
Total	50	100

Numbers of the Studies: In more than half of the papers, multiple studies were conducted. 58% of the papers were constituted with multiple studies, while 42% were based on a single study.

Table 9. Numbers of the studies in papers

Numbers of the studies	Frequency	%
Multiple Studies Papers	14	58,33
Single Study Papers	10	41,67
Total	24	100

Research Sample: The sample of these articles was generally constituted by students (42%). Active consumers (29%), secondary data (25%), and practitioners (4%) followed it (see Table).

Table 10. Research sample

Sample	Frequency	%
Students	10	41,67
Active Consumer	7	29,17
Secondary Data	6	25
Practitioners	1	4,17
Total	24	100

Statistical Analysis Performed: It was observed that the primarily applied analysis was the mediation analysis (48%). Following mediation analysis, Structure Equalling Modelling (SEM) (16%), regression (16%), Correlations (8%), ANOVA (4%), MANCOVA (4%), ANCOVA (2%) and Independent T Test (2%) were used.

Table 11. Statistical analysis

Statistical Analysis	Frequency	%
Mediation Analysis	24	48
Sem	8	16
Regression	8	16
Correlations	4	8
Anova	2	4
Mancova	2	4
Ancova	1	2
Independent T Test	1	2
Total	50	100

4. Results

The present study investigates 24 augmented reality (AR) articles published between 2017 and 2021 in SSCI indexed advertising and marketing journals with high SRJ rankings via content analysis. These journals were Journal of Marketing, International Journal of Information Management, Journal of Advertising, Business Horizons, Journal of Business Research, Journal of the Academy of Marketing Science, International Journal of Research in Marketing, Journal of Interactive Marketing, and Journal of Retailing.

Employing Yale and Gilly's (1988) scheme, the variable of citation number, major issue, target audience, research type, data collection tool, sample set, and statistical analysis applied in the articles were coded in SPSS. In addition to Yale and Gill's (1988) frame, the number of the studies conducted in a single paper was investigated. The frequency tables for each variable were presented. According to the frequency analysis conducted in SPSS, the most cited article was "*The impact of virtual, augmented and mixed reality technologies on the customer experience*" published in 2019 in the Journal of Business Research by Flavián, Ibáñez-Sánchez, & Orús (2019). Like their article, consumer behavior was observed as the most underlying theme in sample articles.

Results also revealed that both scholars and managers were the primary target audience of these papers, and the experiment was the most prominent data collection tool. In addition, mediation analysis was the most adopted statistical analysis in these articles, while most papers were based on multiple studies. Another notable observation was that the respondents were generally students.

Conclusion and Recommendations

There is a general consensus that self-reflective studies are maturity indicators in any academic field. Therefore self-reflective studies have been conducted in several areas such as economy, politics, sociology, psychology, or communication. The self-reflective studies investigate scholarly publications with different methodological approaches such as content analysis, bibliometric analysis, meta-analysis, or surveys. The present self-reflective study examines augmented reality (AR) as an emerging notion in advertising and marketing literature via content analysis to provide insight for future research. For that purpose, the sample articles were determined within the context of SSCI indexed journals with high SRJ rankings. Although the top 20 journals with the highest SJR rankings were scanned with the augmented reality keyword, it was noticed that only half of them included AR articles. Therefore, it is clear that there

is a tremendous need for future investigation. This study also has recommendations for further investigation based on the research findings.

First, the data collection tool of the research was content analysis. It is recommended for future self-reflective AR studies that larger sample units of scholarly publication might be examined by different content analysis schema or any other technique such as bibliometrics. These self-reflective studies, revealing the current state, might lead the way to the subsequent investigation.

Second, the results indicate that consumer behavior was the most underlying theme. It seems that researchers primarily aimed to grasp observer experience with AR concerning consumer behavior. Accordingly, augmented reality technology in advertising and marketing might be investigated from different perspectives, such as consumer experiences on an intercultural basis, technology adoption theory, etc.

Third, it is observed that the vast majority of the articles depended on the quantitative methodology and included multiple studies. In this context, experiments were widely conducted. However, it is recommended for future research to utilize multiple studies with a mixed method (mixing of qualitative and quantitative methods) or different techniques such as Electroencephalogram (EEG) or Galvanic skin response accompanying the surveys or experiments.

Finally, future research might be conducted with more heterogeneous and wider sample groups because most of the research respondents were students due to their accessibility. The respondents from different cultures, SES groups, or demography might provide richer information. Also, collaboration with practitioners and scholars is highly advised for comprehensive research.

References

Agarwal, N. D., & Kumar, V. R. (2021). Three decades of green advertising – a review of literature and bibliometric analysis. *Benchmarking: An International Journal, 28*(6), 1934-1958.

Akçayır, M., & Akçayır, G. (2017). Advantages and challenges associated with augmented reality for education: A systematic review of the literature. *Educational Research Review, 20*, 1-11.

Akgöz, S., Ercan, İ., & Kan, İ. (2004). Meta-analizi. *Uludağ Üniversitesi Tıp Fakültesi Dergisi, 30*(2), 107-112.

Alkar, E., & Atasoy, E. (2020). Türkiye'de göç üzerine yapılan doktora tezlerine yönelik bir içerik analizi. *TESAM Akademi Dergisi, 7*(1), 67-89.

Azuma, R. T. (1997). A Survey of Augmented Reality. *Presence, 6*(4), 355-385.

Azuma, R., Baillot, Y., Behringer, R., Feiner, S., Julier, S., & MacIntyre, B. (2001). Recent advances in augmented reality. *IEEE Computer Graphics and Applications, 21*(6), 34-47.

Barhorst, J. B., McLean, G., Shah, E., & Mack, R. (2021). Blending the real world and the virtual world: exploring the role of flow in augmented reality. *Journal of Business Research,* 122, 423-436.

Beard, F. K. (2002). Peer evaluation and readership of influential contributions to the advertising literature. *Journal of Advertising, 31*(4), 65–75.

Berelson, B. (1952). *Content analysis as a tool of communication research.* Glencoe: IL: Free.

Berman, B., & Pollack, D. (2021). Strategies for the successful implementation of augmented reality. *Business Horizons, 64*, 621-630.

Berryman, D. R. (2012). Augmented reality: A review. *Medical Reference Services Quarterly, 31*(2), 212-218.

Bimber, O., & Raskar, R. R. (2005). Modern approaches to augmented reality. *CM SIGGRAPH 2007 Papers - International Conference on Computer Graphics and Interactive Techniques.*

Borgman, C. L. (1989). Bibliometrics and Scholarly Communication: Editor's Introduction. *Communication Research, 16*(5), 583–599.

Bottomore, S. (1999). The panicking audience?: Early cinema and the 'train effect'. *Historical Journal of Film, Radio and Television, 19*(2), 177-216.

Carmigniani, J., & Furht, B. (2011). Augmented reality: An overview. B. Furht (Ed.) in *Handbook of Augmented Reality* (p. 3-46). USA: Springer.

Carrozzi, A., Chylinski, M., Heller, J., Hilken, T., Keeling, D., & de Ruyter, K. (2019). What's mine is a hologram? How shared augmented reality augments psychological ownership. *Journal of Interactive Marketing, 48*, 71-78.

Caudell, T. P., & Mizell, D. W. (1992). Augmented reality: an application of heads-up display technology to manual manufacturing processes. *Proceedings of the Twenty-Fifth Hawaii International Conference on System Sciences*, *2*, s. 659–669. Kauai, HI, USA.

Chang, C. (2017). Methodological issues in advertising research: Current status, shifts, and trends. *Journal of Advertising, 46*(1), 2-20.

Chen, P., Liu, X., Cheng, W., & Huang, R. (2017). A review of using augmented reality in education from 2011 to 2016. E. Popescu, Kinshuk, M. K. Khribi, R. Huang, M. Jemni, N.-S. Chen, & D. G. Sampson (Ed.) in *Innovations in Smart Learning. Lecture Notes in Educational Technology.* Singapore: Springer.

Cho, C.-H., & Khang, H. (2006). The state of internet-related research in communications, marketing, and advertising: 1994-2003. *Journal of Advertising, 35*(3), 143-163.

de Ruyter, K., Heller, J., Hilken, T., Chylinski, M., Keeling, D. I., & Mahr, D. (2020). Seeing with the customer's eye: exploring the challenges and opportunities of AR advertising. *Journal of Advertising, 49*(2), 109-124.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*, 285–296.

Eisend, M. (2010). A meta-analysis of gender roles in advertising. *Academy of Marketing Science, 38*, 418-440.

Eisend, M. (2017). Meta-analysis in advertising research. *Journal of Advertising, 46*(1), 21-35.

Fang, C., Zhang, J., & Qiu, W. (2017). Online classified advertising: a review and bibliometric. *Scientometrics, 113*, 1481-1511.

Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research, 100*, 547-560.

Grewal, D., Kavanoor, S., Fern, E. F., Costley, C., & Barnes, J. (1997). Comparative versus noncomparative advertising: A meta-analysis. *Journal of Marketing, 61*(4), 1-15.

Guerrero-Bote, V. P., & Moya-Anegón, F. (2021). A further step forward in measuring journals' scientific prestige: The SJR2 indicator. *Journal of Informetrics, 6*(4), 674–688.

Harwood, T. G., & Garry, T. (2003). An overview of content analysis. *The Marketing Review, 3*, 479-498.

Hayhurst, J. (2018). How augmented reality and virtual reality is being used to support people living with dementia—design challenges and future Directions. J. Hayhurst, T. Jung, & T. Dieck (Ed) in *Augmented reality and virtual reality* (p. 295–305). Springer.

Heller, J., Chylinski, M., de Ruyter, K., Mahr, D., & Keeling, D. I. (2019). Let me imagine that for you: Transforming the retail frontline through augmenting customer cental imagery ability. *Journal of Retailing, 95*(2), 94-114.

Heller, J., Chylinski, M., de Ruyter, K., Mahr, D., & Keeling, D. I. (2019). Touching the untouchable: exploring multi-sensory augmented reality in the context of online retailing. *Journal of Retailing, 95*(4), 219-234.

Hilken, T., de Ruyter, K., Chylinski, M., Mahr, D., & Keeling, D. I. (2017). Augmenting the eye of the beholder: exploring the strategic potential of augmented reality to enhance online service experiences. *Journal of the Academy of Marketing Science, 45*, 884–905.

Hilken, T., Keeling, D., de Ruyter, K., Mahr, D., & Chylinski, M. (2020). Seeing eye to eye: social augmented reality and shared decision making in the marketplace. *Journal of the Academy of Marketing Science, 48*, 143–164.

Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. (2020). Transforming the customer experience through new technologies. *Journal of Interactive Marketing, 51*, 57-71.

İçten, T., & Bal, G. (2017). Artırılmış gerçeklik teknolojisi üzerine yapılan akademik çalışmaların içerik analizi. *Bilişim Teknolojileri Dergisi, 10*(4), 401-415.

Javornik, A., Duffy, K., Rokka, J., Scholz, J., Nobbs, K., Motala, A., & Goldenberg, A. (2021). Strategic approaches to augmented reality deployment by luxury brands. *Journal of Business Research, 136*, 284-292.

Javornik, A., Marder, B., Pizzetti, M., & Warlop, L. (2021). Augmented self - The effects of virtual face augmentation on consumers' self-concept. *Journal of Business Research, 130*, 170-187.

Jessen, A., Hilken, T., Chylinski, M., Mahr, D., Heller, J., Keeling, D. I., & de Ruyter, K. (2020). The playground effect: How augmented reality drives creative customer engagement. *Journal of Business Research, 116*, 85-98.

Joerß, T., Hoffmann, S., Mai, R., & Akbar, P. (2021). Digitalization as solution to environmental problems? When users rely on augmented reality-recommendation agents. *Journal of Business Research, 128*, 510-523.

Jordaan, Y., Wiese, M., Amade, K., & de Clercq, E. (2013). Content analysis of published articles in the South African Journal of Economic and Management Sciences. *South African Journal of Economic and Management Sciences, 16*(4), 435-451.

Kamhawi, R., & Weaver, D. (2003). Mass communication research trends from 1980 to 1999. *J&MC quarterly, 80*, 7-27.

Kesim, M., & Ozarslan, Y. (2012). Augmented reality in education: current technologies and the potential for education. *Procedia - Social and Behavioral Sciences. 47*, s. 297 – 302. Elsevier.

Kim, J., & McMillan, S. J. (2008). Evaluation of internet advertising research: A bibliometric analysis of citations from key sources. *Journal of Advertising, 37*(1), 99-112.

Kim, K., Hayes, J. L., Avant, J. A., & Reid, L. N. (2014). Trends in Advertising Research: A Longitudinal Analysis. *Journal of Advertising*, 296-316.

Kowalczuk, P., Siepmann, C., & Adler, J. (2021). Cognitive, affective, and behavioral consumer responses to augmented reality in e-commerce: A comparative study. *Journal of Business Research, 124*, 357-373.

Krippendorff, K. (2004). Reliability in content analysis. *Human Communication Research, 3*, 411–433.

Liao, T. (2019). Future directions for mobile augmented reality research: Understanding relationships between augmented reality users, nonusers, content, devices, and industry. *Mobile Media & Communication, 7*(1), 131-149.

Ma, M., Jain, L. C., & Anderson, P. (Ed.). (2014). *Virtual, augmented reality and serious games for healthcare 1.* Berlin: Springer.

Matthews, B., & Ross, L. (2010). *Research Methods, a practical guide for the social sciences.* Pearson Education Limited.

Mekni, M., & Lemieux, A. (2014). Augmented reality: applications, challenges and future trends. A. Zaharim, K. Sopian, P. Psarris, & M. Morgenstern (Ed.), *Applied computational science, proceedings of the 13th international conference on applied computer and applied computational science (ACACOS'14)* in (p. 205-214). WSEAS press.

Neumann, U., & Cho, Y. (1996). A self-tracking augmented reality system. *VRST'96*, 109-115.

Newton. (2010). Quality and peer review of research: an adjudicating role for editors. *Accountability in Research, 17*(3), 130-145.

Okazaki, S., & Mueller, B. (2007). Cross‐cultural advertising research: where we have been and where we need to go. *International Marketing Review, 24*(5), 499-518.

Ong, S., & Nee, A. (Ed.). (2004). *Virtual and augmented reality applications in manufacturing.* London: Springer.

Papagiannis, H. (2009). Augmented reality (AR) joiners, a novel expanded cinematic form. *IEEE International Symposium on Mixed and Augmented Reality* (p. 19-22). Orlando, Florida: Arts, Media and Humanities Proceedings.

Potter, J., & Riddle, K. (2007). A content analysis of the media effects literature. *J&MC, 84*(1), 90-104.

Pozharliev, R., De Angelis, M., & Rossi, D. (2022). The effect of augmented reality versus traditional advertising: a comparison between neurophysiological and self-reported measures. *Marketing Letters, 33*, 113-128.

Punjani, K. K., Kumar, V. R., & Kadam, S. (2019). Trends of puffery in advertising – a bibliometric analysis. *Benchmarking: An International Journal, 26*(8), 2468-2485.

Rauschnabel, P. A. (2021). Augmented reality is eating the real-world! The substitution of physical. *International Journal of Information Management, 57*, 1-15.

Rauschnabel, P. A., He, J., & Ro, Y. K. (2018). Antecedents to the adoption of augmented reality smart glasses: A closer look at privacy risks. *Journal of Business Research, 92*, 374-384.

Reid, L. N., Soley, L. C., & Winner, R. D. (1981). Replication in advertising research: 1977, 1978, 1979. *Journal of Advertising, 10*(1), 3-13.

Russell, J. T., & Martin, C. H. (1976). Sources of scholarly publications in marketing, advertising,and public relations. *Journal of Advertising, 5*(3), 29-34.

Schmidt, S., & Eisend, M. (2015). Advertising repetition: A meta-analysis on effective frequency in advertising. *Journal of Advertising, 44*(4), 415-428.

SCImago Journal & Country Rank. (2021). 05 09, 2022 tarihinde SCImago Journal & Country Rank: https://www.scimagojr.com/journalrank.php?category=1406 adresinden alındı

Sethuraman, R., Tellis, G. J., & Briesch, R. A. (2011). How well does advertising work? Generalizations from meta-analysis of brand advertising elasticities. *Journal of Marketing Research, 48*(3), 457–471.

Smink, A. R., Reijmersdal, E. A., & van Noort, G. (2022). Consumers' use of augmented reality apps: prevalence, user characteristics, and gratifications. *Journal of Advertising, 51*(1), 85-94.

Smink, A. R., van Reijmersdal, E. A., van Noort, G., & Neijens, P. C. (2020). Shopping in augmented reality: The effects of spatial presence, personalization and intrusiveness on app and brand responses. *Journal of Business Research, 118*, 474-485.

So, C. Y. (1988). Citation patterns of core communication journals: An assessment of the developmental. *Human Communication Research, 15*, 236-255.

Stemler, S. (2000). An overview of content analysis. *Practical Assessment, Research, and Evaluation, 7*, 1-6.

Sung, E. C. (2021). The effects of augmented reality mobile app advertising: Viral marketing via shared social experience. *Journal of Business Research, 122*, 75-87.

Sutherland, I. E. (1968). *A head-mounted three dimensional display.* USA: Harvard University.

Tan, Y.-C., Chandukala, S. R., & Reddy, S. (2022). Augmented reality in retail and its impact on sales. *Journal of Marketing, 86*(1), 48-66.

Uğur, İ., & Apaydın, Ş. C. (2014). Artırılmış gerçeklik uygulamalarının reklam beğeni düzeyindeki rolü. *Humanities Sciences, 9*(4), 154-156.

Wang, C.-C., & Hu, W.-C. (2011). Bibliometric analysis of advertising endorser research in marketig. *2010 International Conference on E-business, Management and Economics* (p. 102-106). Hong Kong: IACSIT Press.

Weber, R. P. (1990). *Basic content analysis.* Newbury Park: Sage.

Wedel, M., Bigné, E., & Zhang, J. (2020). Virtual and augmented reality: Advancing research in consumer marketing. *International Journal of Research in Marketing, 37*, 443–465.

Whang, J. B., Song, J. H., Choi, B., & Lee, J.-H. (2021). The effect of Augmented Reality on purchase intention of beauty products: The roles of consumers' control. *Journal of Business Research, 133*, 275-284.

Yale, L., & Gilly, M. C. (1988). Trends in Advertising Research: A Look at the Content of Marketing-Oriented Journals from 1976 to 1985. *Journal of Advertising, 17*(1), 12-22.

Yaoyuneyong, G., Foster, J. F., Johnson, E., & Johnson, D. (2016). Augmented reality marketing: consumer preferences and attitudes toward hypermedia. *Journal of Interactive Advertising, 16*(1), 16-30.

Yim, M. Y.-C., & Park, S.-Y. (2019). "I am not satisfied with my body, so I like augmented reality (AR)": Consumer responses to AR-based product presentations. *Journal of Business Research, 100*, 581-589.

Yim, M. Y.-C., Chu, S.-C., & Sauer, P. L. (2017). Is augmented reality technology an efective tol for E-commerce an interactivity and vividness perspective. *Journal of Interactive Marketing, 39*, 89-103.

Yoo, K., Joo, E., Choi, H., Reid, L., & Kim, J. (2015). Trends in the use of statistics in major advertising journals. *International Journal of Advertising, 34*(3), 549-572.

Yu, D., Jin, J., Luo, S., Lai, W., & Huang, Q. (2009). A useful visualization technique: A literature review for augmented reality and its application, limitation & future direction. M. Huang, Q. Nguyen, & K. Zhang (Ed.) in *Visual information communication* (p. 311-337). Boston: Springer.