

Heidi Mäenpää

**AUGMENTED REALITY VALUE
CREATION:**
A Conceptual Framework for Augmented Reality
Social Media Advergimes

ABSTRACT

Heidi Mäenpää: Augmented Reality Value Creation: A Conceptual Framework for Augmented Reality Social Media Advergimes
Master's Thesis
Tampere University
Master's Degree Programme in Game Studies
May 2021

The gamification of society, increased ad-blocking practices, and technological leaps in mobile augmented reality (AR) have manifested themselves as an increased amount of augmented reality social media advergence (ARSMAG) campaigns being published. These advertisements utilize social media platforms' gamification and AR features to provide consumers with increasingly immersive and engaging brand experiences. However, no research exists on ARSMAGs specifically, and the potential consumer value of AR in ARSMAGs has not been addressed in academic literature. It is imperative for practitioners and researchers to know which consumer experience variables affect AR's value creation process. The aim of this thesis was to review existing AR, social media, and advergence knowledge and practices, and propose key variables to study AR's value creation in ARSMAGs.

The research was completed using a conceptual framework method. First, initial keywords were identified, and then the studies revealed by the search were assessed by their relevance to the topics of AR, social media, and advergimes, in addition to consumer value creation, leaving 155 topic-relevant academic papers. According to conceptual framework guidelines, existing practical applications of these concepts were then reviewed, along with related online blog posts and other non-academic material. At this point, some data sources were discarded due to topic irrelevance. After that, key findings revealed by the review were categorized into a conceptual framework as variables under AR, social media, and advergence topics, and their definitions and relations to the AR value creation process in ARSMAGs were further elaborated on. Based on each variable category review findings, this thesis proposes that to study the process of AR value creation in ARSMAGs, researchers and practitioners should consider the AR experience variables esthetics, telepresence, satisfaction, novelty, and sensory interactions, social media variables shared social experience and electronic word-of-mouth (eWOM), and advergence variables flow, limited-capacity model of attention, and congruence.

The main limitation of this research was the conceptual and interpretive format of the chosen methodology, conceptual framework. Quantitative methods would have produced more measurable results instead of interpretive findings and propositions. Other limitations were the subjective nature of the data gathering, analysis, and categorization related to the framework, as each researcher would interpret the findings differently based on their variable-related emphasis, study background, and interests. The final limitation was the concept of consumer perceived value, which is always subjective to the individual, and hard to measure. Practitioner benefits from this research are the AR value creation variables proposed in this thesis, as by understanding the AR value creation process, practitioners can create better ARSMAGs. The value of this thesis for researchers is the proposed conceptual framework to study AR value creation in ARSMAGs and the multitude of future research directions related to them. The originality and value of the entire thesis for the academic community is the initiation of research on ARSMAGs, the first definition of the term and concept of ARSMAGs, and the consequent added research knowledge to advergimes, AR, social media, and value creation.

Keywords: Augmented Reality, Advergimes, Social Media, Conceptual Framework, Value Creation, Gamified Advertising

The originality of this thesis has been checked using the Turnitin OriginalityCheck service.

TIIVISTELMÄ

Heidi Mäenpää: Lisätyn todellisuuden arvonluonti: Teoreettinen viitekehys sosiaalisen median lisätyn todellisuuden mainospeleille
Pro Gradu -tutkielma
Tampereen yliopisto
Pelitutkimuksen maisteriohjelma
Toukokuu 2021

Yhteiskunnan pelillistyminen, kuluttajien lisääntyneet mainostenestotavat sekä lisätyn todellisuuden (AR) mobiiliteknologian eteenpäinharppaukset ovat näkyneet sosiaalisen median AR-mainospelien (ARSMAG) lisääntyneinä julkaisuina. Nämä mainokset hyödyntävät sosiaalisen median alustojen pelillistämisen- ja AR-ominaisuuksia tuottaakseen kuluttajille yhä immersioivampia ja mukaansatempaavampia brändikokemuksia. Tästä huolimatta ARSMAG-mainospeleistä ei ole tehty aikaisempaa tutkimusta, eikä AR:n potentiaalisesti tuottamaa kuluttaja-arvoa näissä mainospeleissä ole käsitelty akateemisessa kirjallisuudessa. Ammatinharjoittajien sekä tutkijoiden on tärkeä saada tietää, mitkä kuluttajakokemuksen muuttajat vaikuttavat AR:n arvonluontiprosessiin. Tämän tutkielman tarkoituksena oli tarkastella olemassa olevia AR:n, mainospelien ja sosiaalisen median tietoa ja käytäntöjä, ja osoittaa niihin perustuvat muuttajat AR:n arvonluontiprosessin tutkimiseksi ARSMAG-mainospeleissä.

Tutkimus toteutettiin käyttäen teoreettisen viitekehysten luomismetodia. Aluksi valittiin hakusanat, joiden avulla löytyneet AR-, mainospeli-, sosiaalisen median sekä arvonluonnin tutkimukset arvioitiin ja lajiteltiin niiden relevanssin perusteella, josta jäi 155 akateemista julkaisua. Teoreettisen viitekehysten rakennusprosessiin nojaten seuraavaksi tarkasteltiin ja arvioitiin aiheisiin liittyviä käytännön sovelluksia, asiaankuuluvia verkkojulkaisuja sekä muita ei-tieteellisiä materiaaleja. Tämän vaiheen jälkeen osa tutkimusaineistosta hylättiin niiden merkityksettömyyden vuoksi. Seuraavaksi tarkasteluissa tehdyt löydökset kirjattiin muuttujina ylös teoreettiseen viitekehykseen kolmen eri luokituksen alle: AR-kokemusmuuttajat, mainospelimuuttajat sekä sosiaalisen median muuttajat. Tämän jälkeen muuttujien kuvaukset ja määritelmät käytiin läpi, ja niiden AR-arvonluontiprosessisuhteista ARSMAG-mainospeleissä keskusteltiin tarkemmin. Kunkin muuttajaluokan löydösten perusteella tämä tutkielma ehdottaa seuraavaa: AR-arvonluontiprosessin tutkimiseksi ARSMAG-mainospeleissä tutkijoiden ja ammatinharjoittajien tulisi ottaa huomioon AR-kokemusmuuttajat estetiikka, telemaattinen läsnäolo, tyytyväisyys, uutuusarvo ja aisti-interaktiot, sosiaalisen median muuttajat jaettu sosiaalinen kokemus ja sähköinen vertaisviestintä (eWOM), sekä mainospelimuuttajat virtauskokemus (flow), rajoitetun kapasiteetin huomiomalli ja kongruenssi.

Tutkimuksen suurin rajoittuneisuus tulee sen valitusta tutkimusmetodista, teoreettisesta viitekehyksestä, jota voidaan luonnehtia hyvin käsitteelliseksi ja tulkinalliseksi. Kvantitatiiviset menetelmät olisivat tuottaneet mitattavampia tuloksia tulkinnallisten havaintojen ja ehdotusten sijaan. Muut rajoittuneisuudet liittyivät teoreettisen viitekehysten mallin mukaiseen subjektiiviseen tiedonkeruuseen, analysointiin ja luokitteluihin, koska eri tutkijat tulkitisivat löydöksiä perustuen eri painotuksiin, tutkimustaustaan sekä kiinnostuksen kohteisiin. Myös arvonluontiprosessi itsessään on yksilöllinen omakohtainen, ja haastava mitata. Ammatinharjoittajat hyötyvät tässä tutkimuksessa esitetyistä AR-arvonluontimuuttujista, koska niitä ymmärtämällä ja niiden avulla voidaan luoda parempia ARSMAG-mainospelejä. Tutkielman arvo tutkijoille on ARSMAG-mainospeleihin liittyvän teoreettisen AR-arvonluontiprosessitutkimustehdotelmaviitekehysten lisäksi lukuisat siihen liittyvät tutkimussuuntaehdotukset. Opinnäytetyön omaperäisyys ja kokonaisarvo akateemiselle yhteisölle perustuvat ARSMAG-mainospelien tutkimuksen aloittamiseen, ARSMAG-termin ja sen konseptin määrittelyyn ensimmäistä kertaa, sekä mainospelien, AR:n, sosiaalisen median sekä arvonluonnin tutkimustiedon lisäämiseen.

Avainsanat: Lisätty todellisuus, mainospelit, sosiaalinen media, teoreettinen viitekehys, arvonluonti, pelillistetty mainostaminen

Tämän julkaisun alkuperäisyys on tarkastettu Turnitin OriginalityCheck -ohjelmalla.

Table of Contents

1.	INTRODUCTION	1
1.1	Research Background and Motivations	1
1.2	Research Aims, Questions, and Scope	5
1.3	Thesis Structure	6
2.	DEFINITIONS AND CONSIDERATIONS	7
2.1	Advergames	7
2.1.1	Advergames as Gamification	9
2.1.2	Advergame Criticism	10
2.2	Augmented Reality	11
2.2.1	AR, VR, and MR	13
2.2.2	AR Technologies	14
2.3	Augmented Reality Social Media Advergames	16
2.4	Value and Value Creation	19
3.	RESEARCH METHODS	22
3.1	Conceptual Framework	22
3.2	Research Design	26
3.2.1	Keywords, Process, and Review Phases	26
4.	THE CONCEPTUAL FRAMEWORK	29
5.	AR EXPERIENCE VARIABLES	31
5.1	Esthetic	31
5.2	Telepresence	32
5.3	Satisfaction	33
5.4	Novelty	34
5.5	Sensory Interactions	34
6.	SOCIAL MEDIA VARIABLES	36
6.1	Shared Social Experience and eWOM	36
7.	ADVERGAME VARIABLES	38
7.1	Flow	38
7.2	The Limited-Capacity Model of Attention	39
7.3	Congruence	41
8.	CONTRIBUTION AND CONCLUSIONS	42
8.1	Research Evaluation and Limitations	43
8.2	Scientific Contribution and Future Research	44
8.3	Practical Implications	46
8.4	Conclusion	46
	REFERENCES	47

List of Abbreviations

ARSMAG	Augmented reality social media advergence
AR	Augmented reality
VR	Virtual reality
MR	Mixed reality
XR	Extended reality
UI	User interface
eWOM	Electronic word-of-mouth
2D	Two-dimensional
3D	Three-dimensional
QR	Quick response
GPS	Global positioning system
NFC	Near-field communication

1. INTRODUCTION

In the last twenty years, games and gamification have become an ever-growing part of consumers' lives (Dillon, 2020; Kinnunen *et al.*, 2020), increasingly appearing in the form of advergames and gamified augmented reality filters on social media (Okazaki and Yagüe, 2012; Terlutter and Capella, 2013; Appel *et al.*, 2020; Hawker and Carah, 2020; Lenslist, 2020). The development of digital gaming has been relatively fast as it has reached mainstream status in just a couple of decades, which has significantly impacted existing business models and gaming technologies (Mäyrä and Alha, 2020). At the same time, augmented, virtual, and mixed reality gaming have also seen huge developments, creating an optimal breeding ground for hybrid forms of play (Mäyrä, 2017, 2020; Parekh *et al.*, 2020). However, there has not been a similar rise in research surrounding these new technologies. Studies on augmented reality as a value creator in social media advergames are particularly lacking, as current research solely focuses on these concepts as separate entities. This thesis aims to find ways to understand and study the combined value and relationships of augmented reality, social media, and advergames while discussing the areas in need of further research. The thesis also hopes to inspire and aid future academic studies related to the subject.

1.1 Research Background and Motivations

In 2020, the total value spent on digital advertising campaigns, including ads for search engines, website banners, and social media, crossed \$355 billion (Hootsuite and We Are Social, 2021). However, if the current digital advertising world were to be described in one word, it would be 'intrusive' (Parra-Arnau *et al.*, 2017; Rus-Arias *et al.*, 2021). Constantly forcing commercial messages upon users has, over time, led to the current situation where consumers prefer to browse ad-free by utilizing ad-blocking tools, hurting the free economy of the Internet that relies on advertising to keep their platforms running (Zhechev, 2015;

Parra-Arnau *et al.*, 2017; Shiller *et al.*, 2018; Wielki and Grabara, 2018; Rus-Arias *et al.*, 2021). Globally, during the year 2020, almost 43% of Internet users reported blocking advertisements on monthly basis (Hootsuite and We Are Social, 2021, pp. 74–75). Out of Internet users between 16 and 64 years of age, 22% reported using ad blockers because of the number of ads on the Internet and 22% because too many of the ads were either deemed as annoying or irrelevant (Hootsuite and We Are Social, 2021, p. 76). This change has forced practitioners to come up with new innovative ways of attracting and keeping consumer attention (Anderson, 2010; Hanssens and Pauwels, 2016; Kotler *et al.*, 2017; Hanssens, 2018; Li *et al.*, 2021). One increasingly popular way of creating more positive and engaging user experiences is the practice of gamification in advertising.

Nowadays, gamification, including various game mechanics, technologies, features, and affordances, has been widely adapted to multiple business practices. Gamification is the act of utilizing game elements in non-game contexts (Deterding *et al.*, 2011), such as achievements, progression bars, and scoreboards (Hamari, 2013, 2017; Hamari *et al.*, 2018; Xi and Hamari, 2020), to motivate consumers and influence their behaviors (Deterding *et al.*, 2011; van Berlo *et al.*, 2021). In commercial contexts, one example of gamification is a customer loyalty program, where after each purchase, customers gain points towards increasingly better rewards. In an attempt to increase ad engagement and enhance ad attitudes, the marketing industry has taken the concept further by creating fully gamified advertising campaigns, better known as advergames.

Advergames are a way of making the ad content feel more playful, immersive, and valuable to the consumer. Van Berlo *et al.* (2021) define advergames as advertising messages that are fully gamified. The difference between a game and an advergame is that, while the former is created for entertainment purposes, the latter focuses on being persuasive through gameful elements. Advergames are believed to increase brand value (Okazaki and Yagüe, 2012) and create positive effects on consumer-brand relationships (Terlutter and Capella, 2013; van Berlo *et al.*, 2021). Advergames are often seen as superior to regular digital advertisements since the consumers voluntarily search for them for entertainment purposes, knowingly submitting themselves to receive persuasive

messages while doing so (Roettl *et al.*, 2016). Although used in modern-day marketing, advergames themselves are not a novel phenomenon. Advergames have been a part of marketing campaigns for more than thirty years (de la Hera, 2019), and have reached consumers in the form of CDs in cereal boxes, Flash games on web pages, and, more recently, through the scanning of QR codes on mobile social media platforms, such as Instagram and Snapchat. These technologically advanced platforms have also provided an opportunity for practitioners to utilize another novel mobile technology, augmented reality (AR), to enhance the advergame experience.

Social media platforms like Instagram, Snapchat, and TikTok have all integrated AR into their in-app camera features, giving consumers easy access to the technology. While virtual reality (VR) technologies immerse the user into a synthetic virtual environment, AR technologies enhance reality by adding interactive virtual elements into a live camera-feed through 3D tracking algorithms (Milgram and Kishino, 1994; Milgram *et al.*, 1995; Azuma, 1997; Zhou *et al.*, 2008; Carmigniani and Furht, 2011; Craig, 2013; Javornik, 2016; Gupton, 2020). AR is said to provide exciting possibilities for various businesses (Javornik, 2016) and is thought to be an effective and engaging customer acquisition tool (Sung, 2021). Because of this, it is no wonder many brands have started creating and publishing their own AR advergames on social media.

Social media advergames utilizing AR have increasingly been published by multi-billion-dollar global brands, such as Starbucks, Red Bull, and Candy Crush Saga. In an AR social media advergame (ARSMAG), AR is often used to integrate the user's face into the gameplay scene and the games are controlled with either gestures or facial expressions. These features have the potential to make ARSMAGs highly immersive and impactful. When impressive AR experiences are shared on social media, they can have a positive effect on electronic word-of-mouth (eWOM) practices and make other users want to find similar experiences to share within their networks (Seidman, 2013; Sung, 2021). Since bigger brands have shown an interest in the possibilities offered by the technology, it could lead to smaller brands copying the advertising method. This, in return, would further increase consumer exposure to AR and could diminish some of the technology's

perceived novelty value. Because of this, it is crucial to understand in what ways AR can affect the user experience and perceived value beyond first impressions. Unfortunately, research on AR's effect on social media advergimes at present remains nonexistent. Despite practitioners being eager to utilize novel technologies in their advertising campaigns (Scholz and Duffy, 2018; Sundar *et al.*, 2019; Goebert, 2020) and the rise of research interest in mobile AR games like *Pokémon Go* (Anderson, 2016; Mäyrä, 2017; Rauschnabel *et al.*, 2017; Apperley and Moore, 2019) that are similar to ARSMAGs, the latter topic has not yet become prominent in academic settings. Practitioners need to be able to understand what makes people play these gamified advertisements and how playful features in commercial contexts enhance the effectiveness of advertising (Anderson, 2010; Terlutter and Capella, 2013; Hamari and Keronen, 2017; McCaffrey, 2020), in addition to understanding how AR can affect the social media advergence experience. Beyond software and hardware performance issues, arguably the biggest issue in ARSMAG utilization and development is the dearth of research surrounding the subject.

Since ARSMAGs suffer from a severe lack of academic attention, it has led practitioners into a paucity of knowledge. A meta-analysis conducted by van Berlo *et al.* (2021) revealed that most advergence research focused on games played on a desktop computer, leaving out modern-day applications, such as AR and social media platforms. Phua and Kim (2018) and Dodoo and Youn (2021) have researched the consumer effects of branded AR filters on Snapchat, but currently, no research exists on how AR affects advergence experiences on these same platforms. For practitioners, it is vital to study how these presently popular technologies work together and what role AR plays in creating better consumer experiences in social media advergimes. It is also necessary to shed light on which features and affordances of advergimes and social media can impact the AR experience and especially how they relate to AR's value creation process.

Value creation aims to increase value generation (Chesbrough *et al.*, 2018; Dyer *et al.*, 2018; Visnjic *et al.*, 2018; Sjödin *et al.*, 2020). Value, or the subjective consumer experience of interacting with and assessing brands or branded content, is an integral part of the consumer experience (Pine II and Gilmore, 1998, 2013; Gentile *et al.*, 2007; Brakus *et al.*, 2009; Pentina *et al.*, 2011; Merrilees,

2016). Since there is an increasing need to understand AR's effects on the consumer experience of social media advergaming, research is essential on AR's value creation procedures and the variables affecting it. By studying and understanding the value creation process of AR, researchers and practitioners can begin identifying other aspects related to the consumer experience in ARSMAGs.

1.2 Research Aims, Questions, and Scope

The main reason this study is needed is the lack of research on augmented reality social media advergaming practices and the increasing consumer dissatisfaction towards current forms of digital advertising. ARSMAGs are also gaining immense popularity in advertising practices, so research on the subject should be conducted to make sure that practitioners do not waste important development resources simply because the advertising technique is not thoroughly understood. AR advergaming on social media need to be studied to provide consumers with better ARSMAGs, hopefully leading to both successful advertising campaigns and valuable customer experiences. By combining concepts and theories from different disciplines, this thesis aims to guide practitioners and researchers in studying how ARSMAGs can create value in the eyes of ad-critical online audiences. The research question for this study is:

RQ: Which value creation related variables of advergaming, social media, and AR should be included to study AR's value creation process in ARSMAGs?

To answer the research question, studies related to the background of advergaming, social media, and AR need to be reviewed and reflected upon from the research question's perspective. Conflicting effects must also be uncovered to provide an overall view of the value creation process and challenges. As value is subjective, this research focuses only on consumer-perceived value. The study will aim to reflect on the existing knowledge of AR, social media and advergaming, and present practitioners with research directions for the betterment of the overall practice and consumer ARSMAG reception. It will also aim to present researchers with gaps found in studies and guide and inspire research on the topic.

1.3 Thesis Structure

Chapter 1 introduces the topic of research and presents the research background, motivations, aims, scope, and the research question.

In Chapter 2, the definitions and considerations related to the research question and background are explored. This chapter introduces and reviews the concepts of advergames, augmented reality, AR social media advergames, value, and value creation through existing literature.

Chapter 3 presents the chosen research method, the conceptual framework, and explains why it was selected. This chapter also discusses the overall design process and study structure of the thesis, leading to the creation of the conceptual framework.

In Chapter 4, the research question Q1 is answered through the presentation of a conceptual framework for the study of AR value creation in ARSMAGs. For each presented framework variable, an extensive literature and other relevant data review have been conducted. These results are further elaborated on and discussed in the following chapters, divided into three parts: AR experience variables, social media variables, and advergame variables.

Chapter 5 discusses the AR experience variables esthetics, telepresence, satisfaction, novelty, and sensory interactions. The selected concepts are defined and proposals to include them in the conceptual framework are presented.

In Chapter 6, the social media variables shared social experience and electronic word-of-mouth are explored. The selected concepts are defined and proposals to include them in the conceptual framework are presented.

Chapter 7 presents the advergame variables flow, the limited-capacity model of attention, and congruence. The selected concepts are defined and proposals to include them in the conceptual framework are presented.

In Chapter 8, the contribution of the thesis is discussed. The implications of the conceptual framework for the study of AR value creation in ARSMAGs are also reviewed. The research limitations, in addition to future directions for research, are presented. Finally, the conclusions are drawn from the research and thesis.

2. DEFINITIONS AND CONSIDERATIONS

To begin exploring the study of AR's value creation in ARSMAGs, the surrounding background theories and concepts must be presented. In this chapter, the definitions and considerations of advergames, augmented reality, augmented reality social media advergames, and value are explored through existing literature and practical applications. In Chapter 2.1, the terms and concepts of advergames are defined. Advergames are then reviewed through the concept of gamification, and some of the negative aspects of advergames from the consumers' perspective are discussed. Chapter 2.2 defines AR through existing literature and explores its relation to virtual reality and mixed reality. The chapter also presents current AR technologies and popular social media applications. In Chapter 2.3, ARSMAGs are defined, and three existing games are explored and evaluated. Chapter 2.4 defines and discusses value and the value creation process from the perspective of this thesis.

2.1 Advergames

The name *advergame* consists of two parts: *adver* and *game*. The first word *adver* is an abbreviation of the word *advertising* or *advertisement*, the latter being defined as an intentionally persuasive message created by an advertiser (Thorson and Rodgers, 2019) and the former as the action of doing so. The second word, *game*, is a slightly broader concept. The traditional definition for games comes from the book *Rules of Play* by Salen and Zimmerman (2004). After combining various concepts from other authors, they define games as “a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome” (Salen and Zimmerman 2004, chapter 7, p. 11). The scientific definition of an advergame, depending on the background of the surrounding research, varies from an advertising message that is fully gamified (van Berlo *et al.*, 2021) to a specifically designed digital game that conveys an advertising message to the player (de la Hera, 2019). All definitions agree, however, that advergames include branded assets or messages and are commonly used in providing consumers with engaging and interactive advertising

through the use of gameful elements. This thesis assumes a position in which the difference between games and advergames is in the purpose that they are created for. Games are usually created for entertainment purposes, while advergames are created to persuade and affect consumer thoughts or actions and are inherently commercial.

An advergame's purpose is to ultimately reach a commercial goal set by the designers (Terlutter and Capella, 2013; de la Hera, 2019; van Berlo *et al.*, 2021) and deliver curated brand information to consumers (Thomson, 2010; Terlutter and Capella, 2013). For business use, advergames offer a relatively cost-effective way of reaching consumers that otherwise might not engage with branded content. Most advergames can be described as being relatively short experiences that offer quick rewards and leverage game thinking to positively affect consumer-brand relationships (Terlutter and Capella, 2013; van Berlo *et al.*, 2021). Many modern-day advertising agencies praise advergames for their innovativeness as a medium, but in reality, advergames have existed as a marketing tactic for more than three decades (de la Hera, 2019). The only thing that has changed is that nowadays advergames are mostly published in various digital formats. Furthermore, the consumer effects of advergames are often exaggerated and not conclusive. Advergames are often seen as more engaging and likable than other kinds of advertising, but actual empirical evidence to support these claims is lacking (van Berlo *et al.*, 2021). However, according to Okazaki and Yagüe (2012), advergames are an effective viral tool in improving brand value, which primarily consists of "favorability, uniqueness, and awareness" (Okazaki and Yagüe, 2012, p. 85). The popularity of using advergames in marketing campaigns can be credited to the fact that advergames are often seen by practitioners as a highly persuasive advertising medium.

Advergames are created to be persuasive deliverers of advertising messages (de la Hera, 2019; van Berlo *et al.*, 2021). These can include branded visual, textual, or auditory cues that are implemented into the advergames. Persuasive messaging itself includes sending out any messages that seek to modify consumers' existing knowledge, attitudes, or behavior (Miller, 2014; de la Hera, 2019). In scientific literature, the persuasiveness of advergames has been credited to their ability to stimulate emotions and entertain (van Berlo *et al.*, 2021).

By invoking emotion, players combine their feelings with the advertising message, explaining the persuasiveness (van Berlo *et al.*, 2021). According to Roettl *et al.* (2016), the way consumers find advergames to play is more voluntary and deliberate than interaction with other advertising forms. Consumers search for advergames mainly to enjoy themselves, knowingly agreeing to be immersed in brand messages and submitting themselves to persuasion attempts (Roettl *et al.*, 2016). This, in return, can be explained by the fact that people are assuming advergames as entertainment more than advertisements. Since advergames include rules, elements, and effects similar to normal games, they can be categorized as being part of gamification.

2.1.1 Advergames as Gamification

According to van Berlo *et al.* (2021), advergames are a form of gamification. Especially in the digital age, the term gamification and its practice have gained immense popularity in both academic and commercial contexts (Hofacker *et al.*, 2016; Huotari and Hamari, 2017; Xi and Hamari, 2020; van Berlo *et al.*, 2021). Gamification's popularity can be explained by its ability to utilize highly engaging game elements in non-game contexts, reaping motivational benefits (Deterding *et al.*, 2011). In addition to commercial effects, van Berlo *et al.* (2021) further elaborate that gamification can also help influence people's behaviors and aid in problem-solving. Gamification can also be seen as a much broader concept, as part of society's overall journey towards more ludic technology-aided interactions. Hamari (2019) describes gamification as our modern lives becoming more playful, consequently increasing society's overall happiness. At its core, gamification should lead to more enjoyable and pleasant experiences for users.

Hedonic value, the immediate gratification user perceives from an experience (Cheng, 2014), has been claimed to be an important aspect of gamified advertising in generating positive ad attitudes (Poels *et al.*, 2013). Engaging with gamified content should be enjoyable for the users (Altmeyer *et al.*, 2019) to increase the perceived overall hedonic value (van Berlo *et al.*, 2021). The underlying notion on why gamification is perceived as effective is that since games are engaging and motivating, using game elements in other contexts will lead to the same results (Catalán *et al.*, 2019a). Playful experiences offered by

brands, like advergames, are suggested to increase consumer engagement in brand-related activities and promote their experience-sharing practices on social media (Harwood and Garry, 2015; Bianchi and Andrews, 2018). Although gamification is often seen as a positive trait, when combined with advertising messages into an advergame, the resulting end-product can also cause discord among the public.

2.1.2 Advergame Criticism

Advergimes have faced negative feedback from both consumers and researchers due to their easily exploitable and persuasive nature. In addition to advergimes, the game industry itself has suffered from the lack of rules and regulations regarding persuasion and influencing techniques. These rules are especially important when advergimes are played by underage players who are more susceptible to advertising in general (Waiguny *et al.*, 2014; Boyd *et al.*, 2018; Skiba *et al.*, 2019; van Berlo *et al.*, 2021). In furtherance of creating sustainable and ethical advergimes, researchers and practitioners must discover the central concepts of advergame effectiveness and identify possible pitfalls.

In the academic community, discussion about the ethical side of advergimes often surfaces (van Berlo *et al.*, 2021). Gamified interactions can lower players' ability to recognize advergimes as advertisements, making them appear deceitful by design (Skiba *et al.*, 2019). While performing their research on advergame effects on children, Waiguny *et al.* (2014) noted that the young players seeing an in-game rabbit character repeatedly jump higher after eating sugar-filled cereal was, at best, questionable. Taking into consideration the social cognitive theory, the way new behaviors are learned through observation, repetition, reward, and action-acceptance (Bandura, 1986; Terlutter and Capella, 2013; van Berlo *et al.*, 2021), the industry should set limitations on what advergimes can ethically enforce. Critique aimed towards certain advertising practices should always be heavily considered by practitioners when planning their marketing campaigns.

Criticism in advertising is not new, as each year new regulations are put in place to protect consumers from harmful practices. One brouhaha-inducing marketing

tactic advergames resembles is stealth marketing. When consumers are subjected to an increasing amount of advertising messages in digital and physical environments, they tend to shy away from or block anything that is perceived as a persuasion attempt (Kaikati and Kaikati, 2004; Petty and Craig Andrews, 2008; Zhechev, 2015). For this reason, practitioners have come up with softer ways to transmit their commercial messages. Stealth marketing uses advertising techniques that do not disclose or reveal the advertising party, hide the brand behind the message, and often take advantage of word-of-mouth marketing effectiveness (Kaikati and Kaikati, 2004; Martin and Smith, 2008; Petty and Craig Andrews, 2008; Zhechev, 2015). Although advergames usually display brand elements conspicuously, they distract the consumer with gamified elements (Skiba *et al.*, 2019). Since advergames can be published by anyone, the user's search for entertainment can easily be exploited by hiding brand messages into fun-looking games. Overall, advergames are a very persuasive form of advertising, and practitioners need to be aware of the negative public backlash if caught using deceptive advertising means (Martin and Smith, 2008).

2.2 Augmented Reality

In 1962, a motorcycle simulator *Sensorama* was created by cinematographer Morton Heilig (Carmigniani and Furht, 2011; Kipper and Rampolla, 2012) and became known as "one of the earliest known examples of immersive, multi-sensory technology that had visuals, sound, vibration, and smell" (Kipper and Rampolla, 2012, p. 7). Even though the simulator could not be described as purely AR, it was the beginning of technologies starting to implement multiple sensory augmentations into our reality. In 1997, the three distinctive characteristics of AR systems were for the first time defined by one of the technology's leading researchers, Ronald Azuma, as combining real and virtual, being real-time interactive and registered in 3D (Azuma, 1997, p. 356; Kipper and Rampolla, 2012, p. 10). Zhou *et al.* (2008, p. 193) define AR as "a technology which allows computer-generated virtual imagery to exactly overlay physical objects in real-time". Through face and environment tracking algorithms, users can interact with a digitally-enhanced version of reality (Carmigniani and Furht, 2011).

AR is also more than visual augmentation. In addition to allowing the implementation of graphics or text into a live camera view (Kipper and Rampolla, 2012; Liao, 2015; Mathlin, 2020; Tsai *et al.*, 2020), AR also has the potential to overlay real-time environments with a multitude of other digital or computer-generated sensory effects, such as audio, olfaction, and haptics (Carmigniani and Furht, 2011; Kipper and Rampolla, 2012; Craig, 2013; Javornik, 2016; Caboni and Hagberg, 2019; Flavián *et al.*, 2019; Riar *et al.*, 2021). Despite being a significant object of interest to both academic researchers and practitioners, possibly from the very beginning of AR technologies, implementing augmented assets for every human sense has not yet reached mainstream applications.

Nowadays, AR has evolved into a multi-billion dollar market (Research and Markets, 2021) and has gained a solid footing in people's daily lives, thanks to the widespread adaptation of increasingly powerful smartphones and tablets (Hackl and Wolfe, 2017). AR technologies are increasingly being used in, for example, sports, medical field, robotics, education, communications, entertainment, and gaming (Kipper and Rampolla, 2012; Rauschnabel *et al.*, 2017; Goebert, 2020; Mathlin, 2020; Parekh *et al.*, 2020; Dodoo and Youn, 2021). Interactive AR has become a significant actor in contemporary marketing environments, especially in smart device application formats, and has enabled new content delivery possibilities for marketers and product showcase opportunities for online and physical vendors (Javornik, 2016).

A substantial rise has been reported in the use of AR in retail contexts, which is argued to be due to AR's ability to create impressive virtual-physical experiences for customers shopping online (Breidbach *et al.*, 2014; Janssen, 2018; Caboni and Hagberg, 2019; Flavián *et al.*, 2019; Riar *et al.*, 2021). AR has, for example, enabled consumers to virtually try on sunglasses before reaching their final purchase decision, making the shopping experience more personal and engaging (Scholz and Duffy, 2018; Caboni and Hagberg, 2019; Groove Jones, 2020; Parekh *et al.*, 2020; Tsai *et al.*, 2020). Compared to simple images or videos, the consumer trying on virtual goods can lower the threshold of buying goods online, since the product has already been deemed as fitting.

The rich and vivid world of AR amplifies the suitability and realism of the advertised content for consumers (Tsai *et al.*, 2020). Rauschnabel *et al.* (2019)

mention that, although previous research on AR has produced relevant insight to the reception of AR, on a broader scale their impact on brand-related outcomes remains unclear. Despite this, AR has great future potential both as an interactive entertainment technique (Kipper and Rampolla, 2012) and as a marketing tool, as long as its distinct qualities are taken into consideration (O' Mahony, 2015). With the increased use of AR, the need for further research is ever-growing, as many parts of AR's impact on consumer behavior and its effects remain inconclusive (Javornik, 2016). Researchers and practitioners should see if studies on AR's effects are comparable with studies on similar virtual reality and mixed reality technologies, to understand the effect of extended realities on the consumer experience as a whole.

2.2.1 AR, VR, and MR

The terms augmented reality (AR), virtual reality (VR), and mixed reality (MR) often intermingle and are used to mean the same concept of computer-generated environments or objects in the real world. These technologies are all part of the concept of XR, extended reality (Alcañiz *et al.*, 2019). The virtuality continuum model, first introduced by Milgram and Kishino (1994) and later refined by Milgram *et al.* (1995), shows the virtual and real environments as a spectrum presented in Figure 1. This model illustrates how these technologies are related to each other and can also explain why their concepts are often mixed in everyday language and contexts. MR is a combination of elements of reality, AR, and VR, existing in the environment between virtual and reality where digitally created objects can interact with the real world (Alcañiz *et al.*, 2019; Flavián *et al.*, 2019; Gupton, 2020). Following the virtuality continuum model (Milgram and Kishino, 1994), it can be stated that all applications of AR are part of MR, but not all MR applications are part of AR (Craig, 2013, p. 30).

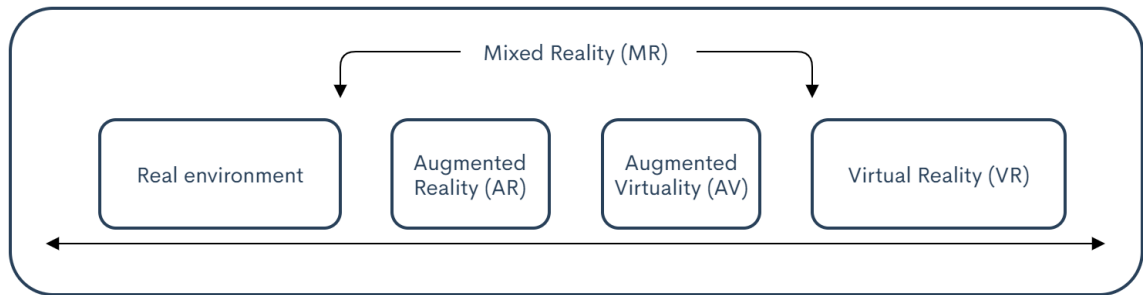


Figure 1. An adapted model of the virtual continuum (Milgram and Kishino, 1994, p. 1323; Milgram et al., 1995, p. 283).

Compared to the reality-enhancing nature of AR, VR is a completely synthetic environment existing outside of the real world (Milgram et al., 1995; Craig, 2013; Javornik, 2016; Gupton, 2020). VR is made of “interactive computer simulations that sense the participant’s [relative] position and actions and replace or augment the feedback to one or more senses, giving the feeling of being mentally immersed or present in the simulation” (Sherman and Craig, 2018, p. 16). Unlike AR, VR also does not necessarily need to track real-life locations, objects, or shapes to be displayed properly (Craig, 2013). AR, VR, and MR share many devices, systems, and interaction mechanisms with each other, but AR can be distinguished by its use of interactive virtual elements on top of real-time environments.

2.2.2 AR Technologies

The technological advancements achieved in the mobility and portability of AR, in addition to the decrease in development costs, have helped increase the importance of AR in the digital society (Javornik, 2016, p. 258). Particularly in commercial contexts, AR is increasingly being used to enhance the customer journey in both online and mobile environments. Part of AR’s success has been the advancements made in global positioning system (GPS) and near-field communication (NFC) technologies, as they both have increased AR’s utility value and relevance. (Javornik, 2016, p. 258.) AR relies on the development of better tracking technologies to further improve its functionality, in addition to increased hardware performance.

Modern-day AR hardware includes, for instance, mobile, computer web camera, and head-mounted devices (Riar et al., 2021). As AR relies on interaction with its

human user, researchers and practitioners have grown a particular interest in studying and utilizing wearable AR devices, such as contact lenses and glasses. AR wearables are expected to be the next big trend in contemporary technologies (Liao, 2015; Stockinger, 2015; Yaoyuneyong *et al.*, 2016; Mathlin, 2020). Earlier this year, the social media platform Snapchat announced the development of their own smart glasses capable of featuring AR effects in real-time, something that their earlier Snap glasses were not able to do (Clark, 2021; Heath, 2021).

Both AR hardware and software innovation from this social media giant is not new. Snapchat was the first to introduce social media users to the world of AR through the launch of its Lenses feature in 2015 (Team Snapchat, 2015). Lenses, or AR filters, can change the user’s facial features, add two-dimensional (2D) or three dimensional (3D) graphics on their faces or in their environment, and integrate them into an interactive background that has virtual elements (Hawker and Carah, 2020; Dodoo and Youn, 2021; Flecha-Ortíz *et al.*, 2021). The technology was eagerly adopted to a plethora of different social media platforms, including Facebook, Instagram, and TikTok, and is nowadays regularly used in daily social media interactions (Team Snapchat, 2015; Bayer *et al.*, 2016). Differences in AR features between three popular social media channels Instagram, Snapchat, and TikTok are presented in Table 1.

FEATURE DESCRIPTION	INSTAGRAM	SNAPCHAT	TIKTOK
Mobile Augmented Reality (Front & Back-Facing Camera)	Yes	Yes	Yes
Desktop Augmented Reality (Webcam)	No	Yes, Windows & Mac	No
Gamified AR Filters	Yes	Yes	Only via selected 3 rd party agencies
User Created AR Filters	Yes	Yes	No
AR Filter Brand Name	Instagram Filter	Snapchat Lens	TikTok Effect
AR Development Software	Spark AR (public)	Lens Studio (public)	Effect Creator (partners only)

Table 1. AR feature comparison of social media platforms Instagram, Snapchat, and TikTok.

In 2018, Spark AR, a direct competitor to Snapchat's 2016 AR filter creator software Lens Studio, was published by Instagram's owner company Facebook (Costley, 2020; Lenslist, 2020). This quickly led to an influx in community-created AR content on social media (Lenslist, 2020). Facebook's chief executive officer Mark Zuckerberg stated that AR filters created through Spark AR had been used by over a billion people within its first year (Lee, 2019), indicating a growing consumer interest in AR, or more specifically, AR social media filter technologies. In addition to altering facial features and adding virtual assets or backgrounds to the image, social media AR engines enable the use of game elements and rules in the filters. The resulting games can be controlled through facial expressions and gestures. (Lens Studio, n.d.; Spark AR, n.d.; Groove Jones, 2020.) If these gamified filters also include branded assets, they are called augmented reality social media advergimes.

2.3 Augmented Reality Social Media Advergimes

An ARSMAG is a playfully interactive digital advertising method that utilizes social media AR filter technology to provide gamified content to consumers. Depending on the rules of the specific social media platform, they can be published as a paid sponsored filter campaign, e.g., on Snapchat, or freely to the brand's social media page, e.g., on Instagram. By combining the definitions and concepts of AR (Zhou *et al.*, 2008) and advergimes (van Berlo *et al.*, 2021) presented in the previous chapters, the following definition for ARSMAGs is synthesized:

An augmented reality social media advergence is a digital and fully gamified promotional message that overlays branded computer-generated objects or environments on top of a real-world camera view and is played on a social media platform.

Despite the lack of academic research, practitioners have eagerly invested in the development of ARSMAGs. Gamified AR experiences can enhance consumer impressions if implemented correctly (Ericsson ConsumerLab, 2019; Lenslist, 2020), and are a great tool for brands seeking ways to engage with their audiences through playful methods. In ARSMAGs, the player is frequently implemented as a game character or shown in the background of the game. As

users often share videos or pictures of these filters with their contacts, they simultaneously become brand advocates and produce free advertising for the brand (Hawker and Carah, 2020).

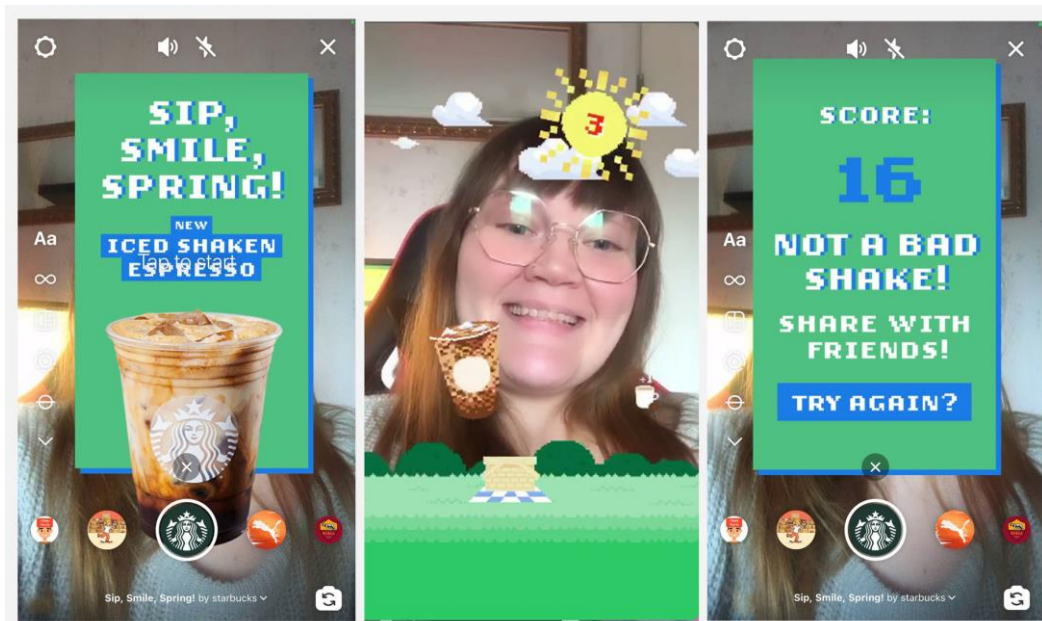


Figure 2. Screenshots from Sip, Smile, Spring! (Starbucks, 2021).

Examples of three globally popular ARSMAGs are presented in Figure 2, Figure 3, and Figure 4. Screenshots from the first ARSMAG example *Sip, Smile, Spring!* (Starbucks, 2021), published on their Instagram page by the coffee brand Starbucks, are shown in Figure 2. In the advergame, the player controls a Starbucks coffee cup that automatically jumps over moving objects whenever the user smiles. Each successful jump scores points for the user, shown on the screen inside a sun icon that has been attached to the player's forehead. At the end of the gameplay session, the user is presented with a score screen that they can share, or simply choose to play again. If the gameplay video or picture is shared, a link directing to the ARSMAG is automatically added to the message.

Figure 3 showcases the ARSMAG *Chasin Paul* (Redbullgermany, 2021), published by the energy drink brand Red Bull's Germany-localized account on Instagram. In the advergame, the player controls an autorunning 3D character, presenting the freerunner celebrity and Red Bull partner Jason Paul, by tilting their head left, right, or up. The aim of the game is to collect as many cans of Red Bull as possible. The player is implemented to the background of the gameplay screen, and the AR game components are laid on top of the live camera feed. If the character hits an obstacle, the game ends, and a score screen pops up. Like

in the previous ARSMAG example, the user can play the adverggame again in hopes of better results, or share their gameplay to their page or contacts, along with a link to the adverggame.

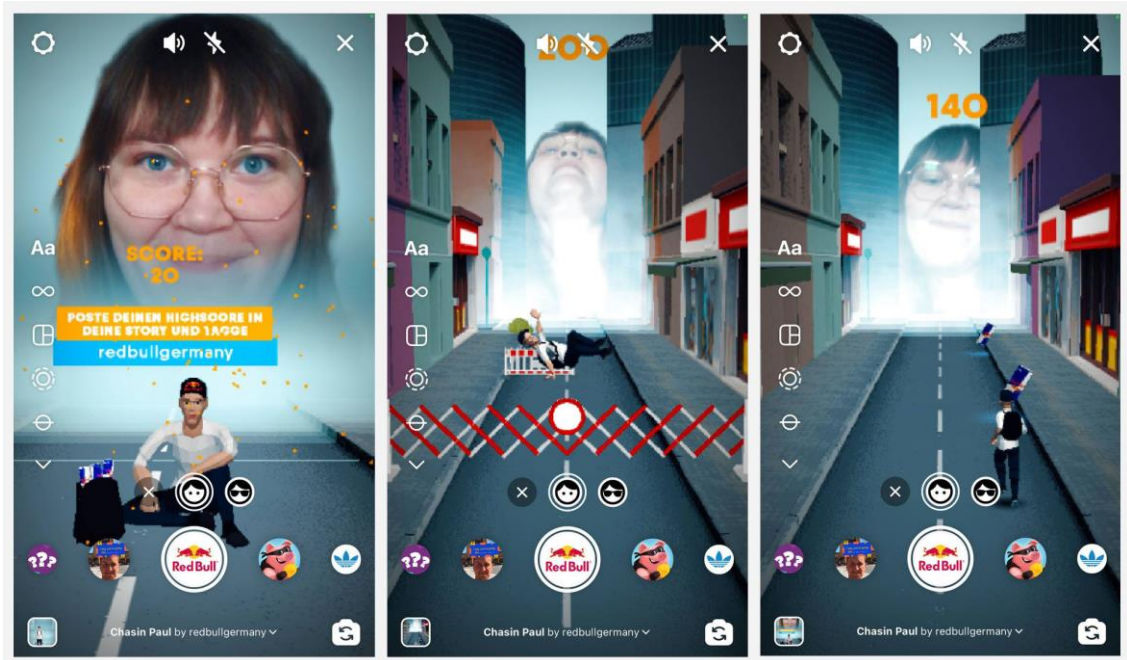


Figure 3. Screenshots from Chasin Paul (Redbullgermany, 2021).



Figure 4. Screenshots from CCS Jumping (Candy Crush, 2020).

Figure 4 shows the user interface (UI) and gameplay steps from the Snapchat ARSMAG *CCS Jumping* (Candy Crush, 2020), published by the brand account Candy Crush. The ARSMAG promotes and includes graphics, music, and sounds

from the popular mobile game *Candy Crush Saga* (King, 2012). The player is implemented into the advergaming as the playable character's face, in addition to being displayed next to the score bar on top of the screen. The game character jumps up and down automatically, and the user can control the character's direction by tilting their head left or right. The game has a time limit of 30 seconds, and the user must collect three similar colored candies to win the game. When the game ends, the user can share their gameplay with their contacts or add it to their Snapchat story, including a link to the advergaming.

The main problem with AR games, in general, is their often inferior quality (Parekh *et al.*, 2020) in comparison to non-AR games. The ARSMAG examples in Figure 2, Figure 3, and Figure 4 also seem to confirm this. It seems that very little thought has been put into the games from game design's perspective. The games have very few narrative dimensions and contain minimal interaction features. Software and hardware performance naturally limit the design possibilities of emerging technologies (Parekh *et al.*, 2020), but the greatest issue lies within the lack of research performed on current ARSMAG environments. Many ARSMAGs seem to have been created based only on the novelty value of the technology. To enhance the practice and create impressive and engaging ARSMAGs, researchers and practitioners need to be able to understand their underlying consumer experience variables, including value creation.

2.4 Value and Value Creation

The definition of value largely varies based on the context and is always a subjective experience. Zeithaml (1988, p. 14) defined perceived value as the "consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given". In more simple terms, Grönroos (2008, p. 303) presented value as "[being] or feel[ing] better off than before". Value creation is defined as the process of aiming to increase value generation (Chesbrough *et al.*, 2018; Dyer *et al.*, 2018; Visnjic *et al.*, 2018; Sjödin *et al.*, 2020). In this thesis, value is understood as the subjective experience of the consumer interacting with and assessing brands or branded content, and value creation the ongoing process of increasing the perceived value.

According to Cheng (2014), the value consumer perceives consists of three dimensions: social, hedonic, and utilitarian. Social value is the “self-perception of social status associated with the use [of products]” (Arlı and Dietrich, 2017, p. 838) or “the product’s ability to enhance social self-concept” (Sweeney and Soutar, 2001, p. 211). This means that the products used by the consumer must be congruent with their self-image and how they might want to appear to others. The use of well-known brands’ products in public view often entails increased social value based on the brand alone. Hedonic values are gratifications derived from product use via sensory and emotional attributes, while utilitarian values are associated with living necessities, product functions, and informational aspects (Sweeney and Soutar, 2001; Voss *et al.*, 2003; Cheng, 2014; Arlı and Dietrich, 2017; Rese *et al.*, 2017). Most ARSMAGs produce only values related to social and hedonic values, although some advergames can also offer factual and informational content in addition to entertainment. Chylinski *et al.* (2020) also argue that consumer value evaluations are adaptive by nature since they can be affected by physical and social environments. The concept of value is heavily linked to the overall consumer experience, and many models have tried to depict and explain this phenomenon in the past.

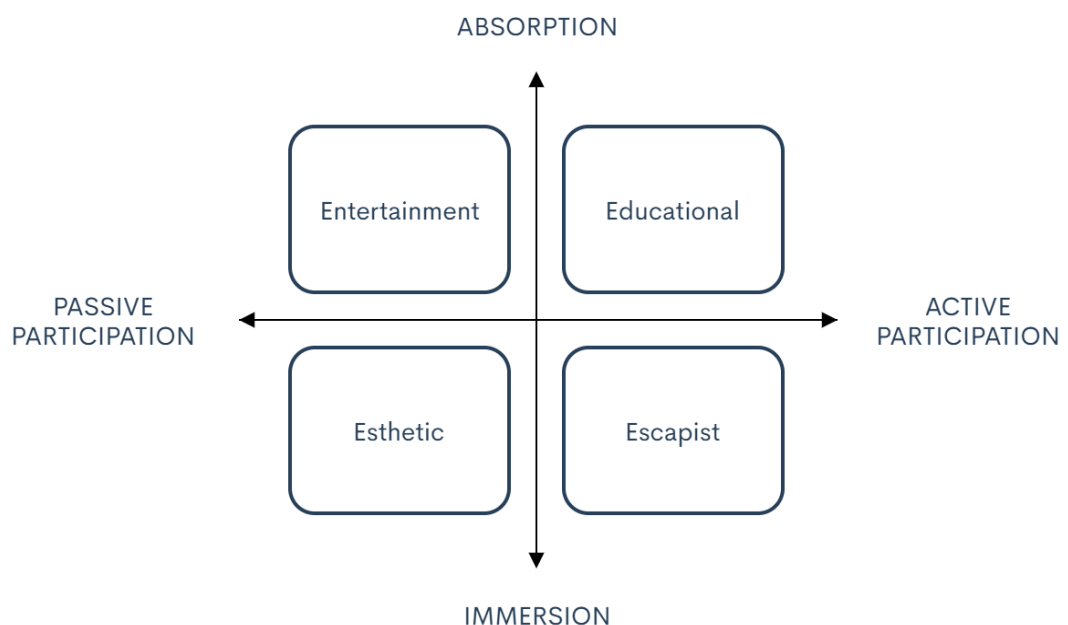


Figure 5. Adapted consumer experience realms (Pine II and Gilmore, 1998).

Value can be seen as an integral part of the consumer experience (Pine II and Gilmore, 1998, 2013; Gentile *et al.*, 2007; Brakus *et al.*, 2009; Pentina *et al.*, 2011; Merrilees, 2016). A popular concept for consumer experience realms was

developed and published by Pine II and Gilmore (1998), illustrated in Figure 5. The center place between passive and active participation, and absorption and immersion, depicts the environment for optimal consumer experience (Pine II and Gilmore, 1998). Practitioners are often urged to design impressive experiences for consumers to increase engagement and generate positive associations (Kang and Gretzel, 2012; Jung *et al.*, 2016; Phua and Kim, 2018; Sung, 2021), as this simultaneously also creates value for the consumer. However, if the complete process of value creation and its variables are not understood, producing impressive, branded content for the consumers is highly challenging. Customer experiences seem to be most effective when customers can physically interact with products or services in a self-relevant context, have them adapt to their preferences, and can share them with others. All of these aspects are possible to implement into and produce with ARSMAGs. By first understanding one aspect of the value creation process in ARSMAGs, AR, research on ARSMAGs other consumer experience variables can also be initiated.

3. RESEARCH METHODS

In this chapter, the reason for selecting the conceptual framework as the research method is explained. In Chapter 3.1, the term and processes of building a conceptual framework are described, and the advantages and disadvantages of selecting the conceptual framework method are presented. Chapter 3.2 describes the research design and development of the conceptual framework via data gathering, evaluation, and categorization. Additionally, it presents the research keywords, search engines used, the scope of the study, and material selection criteria.

3.1 Conceptual Framework

Since no research existed on the topic of ARSMAGs, a conceptual framework for the study of AR value creation in ARSMAGs was chosen to be constructed, using comprehensive and extensive review and data collection from AR, social media, and advergame literature and practical sources. According to Jabareen (2009), through the use of qualitative analysis processes a conceptual framework can be created, resulting in new knowledge that is interpretative instead of factual (Levering, 2002). A qualitative approach to the research and data review was selected over a quantitative approach due to the nature of conceptual frameworks.

The main difference between quantitative and qualitative research is how they approach the concept of knowledge (Efron and Ravid, 2019). Quantitative knowledge is seen as universally applicable, measurable, objective, unbiased, and systematically verifiable information that has been gathered from standardized studies with explicitly strict and well-documented procedures (Wieman, 2007, 2014; Efron and Ravid, 2019, pp. 16–17). Qualitative knowledge, on the other hand, is created by assigning subjective socially constructed meanings to reality, with each individual experiencing the same concepts differently (Efron and Ravid, 2019, p. 17). As this study focused on gaining a broad view on the topic instead of providing quantifiable data, the research method needed to be consistent with the desired outcome. Qualitative research

aims to uncover patterns and existing relationships within different phenomena through “describ[ing], analyz[ing], and interpret[ing]” them, justifying the creation of “conceptually specified analytic categories” (Mishler, 1990, p. 437). Miles and Huberman (1994, p. 440) state that the purpose of a conceptual framework is to define “key factors, constructs, or variables” to help explore and assume existing relationships between them. According to Jabareen (2009, p. 51), instead of being thought of as “merely a collection of concepts”, a conceptual framework should be interpreted as a “construct in which each concept plays an integral role”. For the conceptual framework to achieve its intended purpose, sources for the framework concepts should include relevant and multidisciplinary literature sources, such as news articles, journals, interviews, and books, and represent practices related to the researched phenomenon (Jabareen, 2009). Relevant “social, cultural, political, and environmental phenomenon or... behavior” should ultimately be represented by the literature and other sources selected for the conceptual framework (Jabareen, 2009, p. 53). The process of creating a conceptual framework is not static, as it requires an exploratory, analytical and reiterative perspective and practice in handling and categorizing acquired data (Orlikowski, 1993; Jabareen, 2009). This is to ensure that the scale and conceptual levels of the emerging conceptual framework remain under the researcher’s control (Orlikowski, 1993). Even as the framework is constructed, it should still be in a constant state of validation and reiteration (Jabareen, 2009) to stay relevant in the ever-changing societal landscape. An eight-step process of building a conceptual framework was proposed by Yosef Jabareen (2009) and largely adapted to create the conceptual framework presented in this thesis.

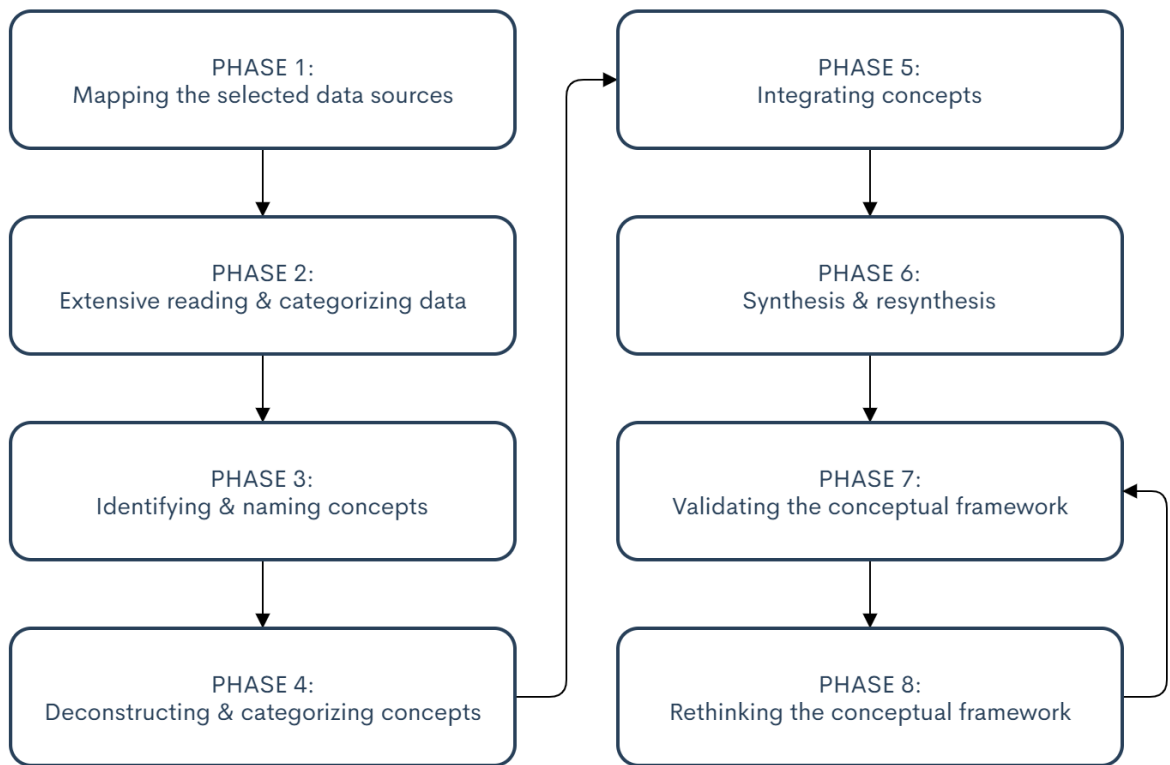


Figure 6. *Conceptual framework building process, adapted from Jabareen (2009, pp. 53–55) and constructed by the author.*

As shown in Figure 6 and explained by Jabareen (2009, p. 53), the process starts from an extensive search and mapping of multidisciplinary literature and the practical applications surrounding the studied phenomenon. After that, the selected data is reviewed and categorized by discipline and level of relevance and importance (Jabareen, 2009, p. 54). In phase three, the aim is to read the selected literature again to uncover framework-relevant concepts that sometimes compete or contradict each other (Glaser and Strauss, 1967; Corbin and Strauss, 1990; Jabareen, 2009, p. 54). In the next three phases, the concepts should be deconstructed, categorized, integrated, grouped, iterated, and re-iterated to finally synthesize a conceptual framework in phase 6 (Jabareen, 2009, p. 54). This phase is the final one this thesis can use, since phase 7 requires the conceptual framework to be tested by other scholars, presented in seminars or conferences, or otherwise discussed and evaluated academically (Jabareen, 2009, p. 54). The final phase 8 involves revising the conceptual framework according to feedback, emergent literature, studies, etcetera. The conceptual framework resulted from this process should always be multidisciplinary and

dynamic, evolve as new concepts and knowledge emerge, and revisit the previous phase to continuously validate itself. (Jabareen, 2009, p. 55.)

Despite the limitations conceptual frameworks have, such as the subjectiveness of the categories selected by the researchers, they also come with many advantages. The resulting findings are flexible and conceptual, leaving room for interpretation, modification, and adaptation as the related phenomena evolve. Instead of predicting how phenomena work, conceptual frameworks help researchers and practitioners in understanding them. (Jabareen, 2009, p. 58.) For these reasons, building a conceptual framework was deemed appropriate for this thesis. By combining and categorizing variables into a conceptual framework for future studies, the relationships between AR, advergaming, social media, and value creation could be explored and better understood by both researchers and practitioners. To summarize, this research method was chosen since:

- No literature existed on the specific topic, so a starting point for research needed to be proposed in a format that was easily adaptable to the workflow of scholars.
- The research data pool was very broad and was influenced by many different research fields.
- The desired result for the thesis was a conceptual proposal to the study of understanding the related phenomena instead of qualitative data analysis.
- Current state of knowledge of AR, social media, and advergaming needed to be addressed from a multidisciplinary perspective, and the theoretical foundations related to the topic needed to be identified and presented in a format that would aid future research on the topic.
- As a nascent research topic, gaps found in existing research were inevitable. Selecting a method that involved researching multidisciplinary sources for information was optimal since it could easily help identify the most prominent and urgent needs for future research.

3.2 Research Design

The research started by first selecting a topic and then narrowing it down until the overall research aims and the research question were formed. After that, the initial search for relevant sources began in December 2020, continuing to February 2021. The main keywords were formed based on existing literature selected at the beginning of the thesis process, and the search for further studies and phenomena-related sources continued until April 2021. While data analysis, iteration, and categorization for the conceptual framework were in constant flux until early May, the writing process itself was initiated in late February. The findings were continuously re-iterated and reviewed whenever new knowledge was gained or new concepts surfaced. The final literary form of the thesis was established over four months. The building and analysis of the conceptual framework and its variables were concluded in early May 2021. New directions for research were identified and the relevance of the thesis was analyzed, evaluated, and concluded in mid-May. These research steps are further explained below.

3.2.1 Keywords, Process, and Review Phases

As the three main topics presented in this paper were AR, advergames, and social media, the keywords listed in Table 2 were chosen for the first phase of building the conceptual framework of studying AR value creation in ARSMAGs. These keywords were also combined to gain access to more relevant results. The selection was based on the key theories and words used in pre-examined scientific publications on augmented reality (Parekh *et al.*, 2020; Tsai *et al.*, 2020; Dodoo and Youn, 2021; Riar *et al.*, 2021), advergames (Catalán *et al.*, 2019a; van Berlo *et al.*, 2020, 2021) and social media (tom Dieck *et al.*, 2017; Phua and Kim, 2018; Hawker and Carah, 2020). As this thesis aimed to guide and inspire future research on the topic, all existing research on these topics was not reviewed. The keywords selected for the first phase were used to help find the most relevant scientific literature surrounding the phenomena and provide the conceptual framework with enough material to be valid in research use in the future.

ADVERGAME KEYWORDS	AUGMENTED REALITY KEYWORDS	SOCIAL MEDIA KEYWORDS
Advergame/Advergames Value	Augmented Reality/AR Value	Social Media Value
Advergame Consumer Experience	Augmented Reality Consumer Experience	Social Media Consumer Experience
Advergame Gamification	Augmented Reality Gamification	Social Media Gamification
Advergame Social Media	Augmented Reality Social Media	Social Media Platforms
Advergame Effectiveness	Augmented Reality Immersion	Social Media Sharing

Table 2. Search keywords for the first stage of literature search.

Search results from before the year 2010 were excluded in the first phase. The first 40-80 results per keyword and keyword combination were reviewed by their headline and abstract. The papers that seemed relevant to the thesis topic were then downloaded for further review. To find relevant, peer-reviewed literature, the online search engines used in the first phase were Tampere University's Andor¹, Google Scholar² and ResearchGate³. Andor utilizes over a hundred bibliographic databases, such as Scopus, IEEE, ScienceDirect and ACM Digital Library. A physical search for relevant literature was not possible due to pandemic restrictions in accessing local libraries, but Andor could be used to electronically reserve and loan books that were deemed important for the research by their abstract or headline.

Only studies written in English were selected in the first phase, but later some publications written in Finnish were accepted as well since they were included in the references of previously selected studies. The search focused on finding the most recent and relevant literature possible, but some significant existing scientific knowledge was most likely missed due to the search keywords not being all-encompassing. Since there is also a gap in the hands-on knowledge of researchers compared to practitioners, especially in the field of advertising (De

¹ Andor search engine: andor.tuni.fi

² Google Scholar search engine scholar.google.com

³ ResearchGate search engine: researchgate.net

Pelsmacker, 2020), some research results presented in the reviewed literature might not be applicable in real-world situations and need further research and evaluation. When reviewing the research papers, their practical relevance was heavily considered, and those papers that focused only on discussing theories without practical applications were categorized as less relevant.

The second phase started with a shallow quality assessment of the selected literature. This phase started with 515 studies, gathered from the search engine results and references used in studies analyzed during the first phase. Several papers were then discarded due to either poor quality reporting or lack of clear results. At the end of the second phase, 155 topic-relevant academic journals and conference proceedings were left for the final phase. During this phase, existing AR advergames on social media were also researched and reviewed, along with online interviews, blog posts, and other phenomena-relevant publications. These sources were searched via Google through the keywords “AR filter games”, “social media games”, “Instagram games”, “Snapchat games”, “gamified AR filters”, and “popular AR filters”. Due to the scope of the review, conceptual approach, and the high variety and multidisciplinary nature of the sources, a critical assessment was not conducted on the material.

During the third and final phase, some literature was eventually discarded due to being deemed unrelated to the topic. The final phase was an iterative process of writing, categorizing, and narrowing down the data for the framework. Once the data was in its final form, the conceptual framework for studying AR value creation in ARSMAGs was constructed and presented in Chapter 4. The proposed framework variables were divided into three categories based on the reviewed literature and other relevant sources and were further discussed in chapters 5, 6, and 7, respectively. Other topic-relevant concepts and background information gathered from the reviewed literature and data sources were described in Chapter 2. Finally, the contributions and conclusions related to the conceptual framework and data review were made and written down in Chapter 8, along with suggestions for future research.

4. THE CONCEPTUAL FRAMEWORK

One of the primary motivators for practitioners to create novel technology-aided advertising content, such as ARSMAGs, is the desire to enhance the consumer perceived value by offering immersive and inspiring advertising experiences. How this value is created by AR in ARSMAGs, however, remains a mystery to both researchers and practitioners. This thesis aimed to aid researchers and practitioners in understanding what variables can affect the value creation of AR technology in advergAMES published on social media. Due to the scattered knowledge surrounding the subject and dearth of research in combining the three different concepts, AR, advergAMES, and social media, creating a conceptual framework for the study of AR value creation in ARSMAGs was necessary. Through an extensive literature review and the assessment of practical applications and other relevant data, the conceptual framework presented in Figure 7 is suggested for studying AR value creation in ARSMAGs.

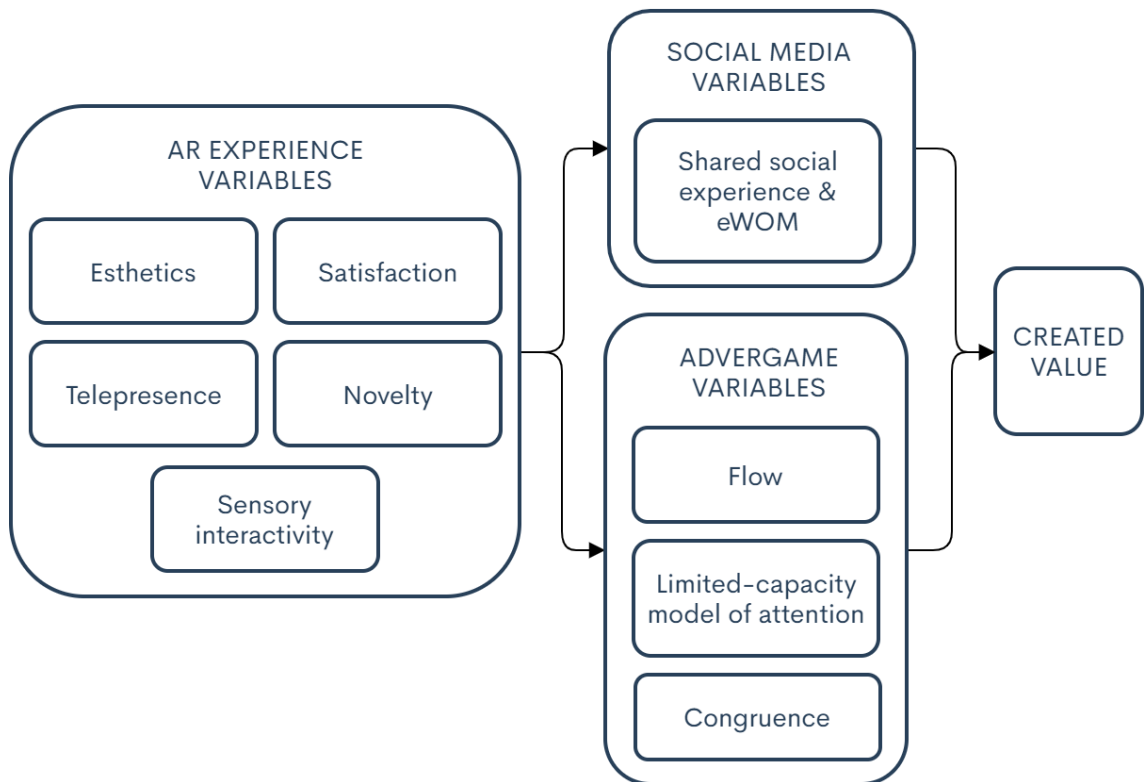


Figure 7. A proposed conceptual framework for the study of AR value creation in ARSMAGs.

The conceptual framework proposes key variables derived from AR, social media, and advergames, showcasing them as constituents of AR's value creation process. The framework shows the selected variables in three categories, AR experience variables, social media variables, and advergame variables, and how they are proposed to relate to the value creation journey. As asserted by Jabareen, (2009), the next steps for the framework are academic peer-reviews, for example being presented and discussed in scientific seminars, and continuous reiteration after further studies on the subject have been conducted. In this thesis, the variables of the conceptual framework and the proposals presented in them are discussed in the following chapters, along with an assessment of the conceptual framework concerning future studies.

5. AR EXPERIENCE VARIABLES

After reviewing AR literature (64) and other data sources (10) related to AR during the process of creating the conceptual framework, 20 sources mentioned the consumer perceived esthetic, 30 the feeling of telepresence, 37 satisfaction, 23 novelty, and 17 sensory interaction and effects as part of the consumer experience and value creation. Based on these findings, it is proposed that:

Proposition 1: AR experience variables in AR value creation in ARSMAGs are esthetics, telepresence, satisfaction, novelty, and sensory interactions, each of which is considered a constituent of the value creation process.

In the following chapters, the proposed variables are reviewed and discussed. Chapter 5.1 focuses on the perceived esthetics of AR experiences. Chapter 5.2 reviews the feeling of telepresence instigated by AR. Chapter 5.3 presents the variable consumer and end-user satisfaction in AR experiences. Chapter 5.4 explores how perceived novelty affects AR experiences. In Chapter 5.5, the sensory interaction dimensions of AR experiences are reviewed and discussed.

5.1 Esthetic

In many contexts, visual features are often the first thing consumers notice. Tom Dieck *et al.* (2018) claim that the assessment of any AR experience begins with the evaluation of its esthetic before anything else. Esthetic is the beauty consumer perceives through the elements presented in a digital interface, such as colors, photos, typography, and UI design (Lee *et al.*, 2015). In AR, the quality of 3D models, animations, and interactions with the augmented environment all relate to esthetics. Esthetic is considered one of the main elements of the consumer experience realms (Pine II and Gilmore, 1998), as well as part of value creation. The higher the perceived esthetic, the better the user evaluation is of their experience. With the rise of AR applications, esthetic has arguably become an even more important factor in consumer experiences than before (Jung *et al.*, 2016; tom Dieck *et al.*, 2018). According to Lee *et al.* (2015), AR's perceived esthetic can enhance consumers' hedonic perception and was found to positively

affect AR's perceived usefulness, ease-of-use, and enjoyment. AR experiences also benefit from perceived esthetics in advertising contexts. Consumer ad attitude, purchase motivation, and ad engagement were all found to be influenced by it (Dodoo and Youn, 2021). Sung (2021) encouraged practitioners to design AR advertisements to be esthetically pleasing, as the ads would then be perceived as immersive, memorable, and satisfying by the consumers. To conclude these findings, the following is proposed:

Proposition 2: Consumer perceived AR esthetic impacts AR value creation in ARSMAGs.

5.2 Telepresence

Modality affordances like AR that enhance the ad viewer's presence trigger the feeling of telepresence and positively affect consumer opinions (Sundar *et al.*, 2019). Telepresence, one of the antecedents of flow (Catalán *et al.*, 2019b; Han *et al.*, 2020), is the immersive feeling of being transported to another place, or in other words, the sensation of being in a meditative state beyond the surrounding physical world (Biocca, 1997). This feeling is aided by a medium, such as an electronic entertainment platform (Kim and Biocca, 1997; Tsai *et al.*, 2020). The antecedents leading to the feeling of telepresence were modeled by Kim and Biocca (1997), presented in Figure 8.

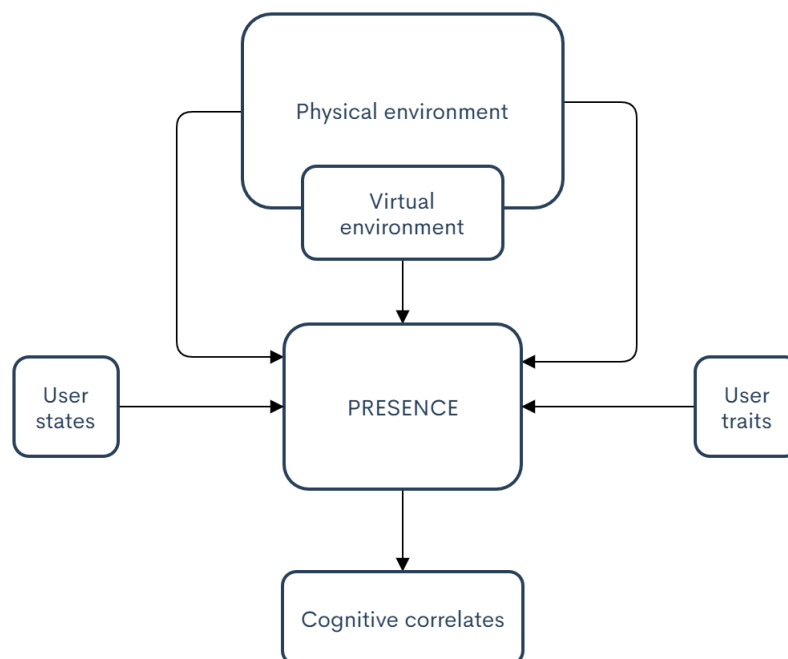


Figure 8. Adapted model of telepresence (Kim and Biocca, 1997, Figure 1).

The interactivity and vividness of the advertising media, like AR advertisements, positively affect the feeling of telepresence (Steuer, 1992; Coyle and Thorson, 2001; Tsai *et al.*, 2020). According to Kim and Biocca (1997) and echoed by Tsai *et al.* (2020), the general scientific consensus is that when virtual and physical stimuli simultaneously enter the user's cognition, a battle ensues: the stimuli mix is combined with the user's traits and states, resulting in the feeling of being transported into a mediated environment (Lombard and Ditton, 1997). Telepresence promotes the feeling of escapism, one of the four elements of the consumer experience (Pine II and Gilmore, 1998), increasing the consumer perceived value. Even though studies are not conclusive (see, e.g., Nelson *et al.*, 2006), too much telepresence created by AR can be detrimental to consumers' brand recall in game settings (Grigorovici and Constantin, 2004). If the consumer is unable to recall the advertiser in ARSMAGs, created value is also lost. Hence, based on these findings, the following is proposed:

Proposition 3: Consumer perceived feeling of telepresence through AR affects AR value creation in ARSMAGs.

5.3 Satisfaction

Satisfaction is a very important part of the creation process of consumer perceived value in AR. Satisfaction in computer-mediated interactions is defined as "the affective attitude towards a specific computer application by someone who interacts with the application directly" (Doll and Torkzadeh, 1988, p. 261). Satisfaction has been found to affect technology adaptation, along with consumer retention (tom Dieck *et al.*, 2017, 2018). This is important for AR applications since lessened consumer satisfaction simultaneously lessens the value of the AR experience, which can lead to lesser desire to use AR as a result. According to Sung (2021), the level of satisfaction in AR advertising increases the more consumers are immersed in the feelings of escapism. Unfortunately, the consumer's age and previous AR exposure play a role in the amount of satisfaction the consumer gets from using AR. Younger consumers, who are overall more familiar with digital advertising technologies, find less sense of escapism from AR, which leads to a decreased feeling of satisfaction (Sung, 2021). This will simultaneously negatively affect AR's consumer perceived value.

This can partly be caused by badly designed AR applications (O' Mahony, 2015) or the fact that AR's perceived novelty value is slowly decreasing (Yim *et al.*, 2017; Hinsch *et al.*, 2020; Riar *et al.*, 2021; Sung, 2021). As a conclusion to these findings, this thesis proposes the following:

Proposition 4: Level of consumer satisfaction with the AR experience impacts AR value creation in ARSMAGs.

5.4 Novelty

Novelty, or the perceived newness, unusualness, or originality, can both greatly enhance and lessen AR's perceived value. Even though most AR applications currently benefit from AR's perceived novelty value (Hopp and Gangadharbatla, 2016; Yaoyuneyong *et al.*, 2016; Chylinski *et al.*, 2020; Riar *et al.*, 2021), the novelty value of AR is found to decrease over time, and previous exposure greatly lessens AR's overall impressiveness (Hopp and Gangadharbatla, 2016; Yim *et al.*, 2017), along with its value. The rise in the use of AR technology will eventually lead to negative value perceptions, as consumers will start evaluating the experience outside of novelty through its other, more prominent features like performance and quality. In their study on AR's effects on advertising effectiveness, Yang *et al.* (2020) reported that only unfamiliarity with AR technology led to positive attitudes toward AR advertisements. Hopp and Gangadharbatla (2016) found that the longer people were subjected to AR advertising environments, the worse the participants' attitudes towards AR ads were. Additionally, they concurred with past research on that residual levels of arousal left from a previously stimulating experience accelerate negative evaluations when thoroughly explored (Hopp and Gangadharbatla, 2016, p. 124). In light of these findings, the following is proposed:

Proposition 5: AR's perceived novelty value affects AR value creation in ARSMAGs.

5.5 Sensory Interactions

An integral part of the AR experience is the way consumers interact with augmented senses, such as haptics, visuals, and sounds. According to Pine II

and Gilmore (1998), the more sensory elements are implemented into an experience, the more it affects the consumer. Practitioners should, however, experiment with different senses to achieve optimal product congruence (Pine II and Gilmore, 1998). Due to technological limitations, most AR sensory research has focused on visual, auditory, haptic, and olfactory sensations, leaving out senses like taste and movement (Craig, 2013). As an example, touch feedback, such as mobile device vibrations when interacting with digital objects in AR applications, can help increase the perceived realism and authenticity of the augmented environment, greatly enhancing consumer perceived value of the AR experience. Sensory interfaces induce emotional responses (Petit *et al.*, 2015), and when used in AR advertising, create genuinely impressive and engaging consumer-brand experiences (Sung, 2021). In this regard, it can be postulated that added sensory elements of AR advertisements create more value for consumers and increase customer satisfaction. At the same time, lesser sensory interactions in AR will lessen the perceived value. This thesis proposes that:

Proposition 6: Sensory interaction features in AR experiences, such as augmented touch, taste, and smell, have an effect on AR value creation in ARSMAGs.

6. SOCIAL MEDIA VARIABLES

After reviewing social media (30), social media AR (5), and social media advergame (2) literature and other data sources (3) related to social media during the process of creating the conceptual framework, 25 sources were found to mention eWOM and shared social experience as part of the consumer experience and value creation. Based on the findings, this thesis proposes that:

Proposition 7: Social media variables in AR value creation in ARSMAGs include the shared social experience and eWOM, both of which are considered constituents of the value creation process.

The following Chapter 6.1 discusses and reviews these proposed social media variables shared social experience and eWOM practices, along with their relation to AR's value creation.

6.1 Shared Social Experience and eWOM

Interactive and immersive brand experiences that inspire escapism, sometimes cause consumers to create unpaid advertising content for the brand known as user-generated viral marketing or the shared social experience (Sung, 2021). Gamified branded AR experiences can be very effective in inspiring consumers to share the brand message, as the perceived value of the experience is high. According to Sung (2021), novel AR ad experiences positively influence consumer attitudes and responses towards the brand, suggesting that successful campaigns induce both shared social experience and higher purchase intention. The shared social experience is very similar to the concept of eWOM, in which consumers share brand and product-relevant messages to their peers online (Hennig-Thurau *et al.*, 2004; Chu and Kim, 2011; Marchand and Hennig-Thurau, 2013; Chu and Sung, 2015; Erkan and Evans, 2016). These messages can be positive or negative and are usually perceived as trustworthy. This is due to word-of-mouth not being considered marketing, and because the messages are often shared by someone the recipient has a close relationship with, such as friends or relatives (Derbaix and Vanhamme, 2003).

Both activities and attitudes related to brands are enhanced when consumers interact with the company on social media (Schivinski *et al.*, 2016). This means that consumer experiences with branded content, such as ARSMAG, affect the consumer perceived value either positively or negatively, depending on how these interactions play out. Sung (2021) stated that when impressive and immersive AR brand experiences are shared directly or indirectly by the consumers, they cause cognitive and emotive shifts in those that receive the messages (Dixon *et al.*, 2005). Those individuals can then be motivated to search for similar experiences to share with their social groups (Seidman, 2013; Sung, 2021). One of the three motivators of personal identity, the need for self-expression (Muntinga *et al.*, 2011), has been deemed to be fulfilled by users sharing interesting or unusual experiences, such as AR, with their social circles online (Edell and Staelin, 1983; Sung, 2021). To fulfill people's social identity needs, the visual communication style of AR is highly congruent as it lets consumers experience highly enhanced social interactions in both private and public (Scholz and Duffy, 2018; Carrozzi *et al.*, 2019).

If an AR experience is deemed valuable by the consumer, they are more eager to share it, increasing its value even more in the eyes of other consumers. Consumers add value to companies on social media by generating brand-related content, becoming brand or product advocates, or by influencing other customers' purchase behavior through eWOM practices (Okazaki and Yagüe, 2012; Erkan and Evans, 2016; Bianchi and Andrews, 2018; Caboni and Hagberg, 2019; Zhang *et al.*, 2020). At the same time, brands add value to consumers by providing them with impressive experiences, such as AR. Okazaki and Yagüe (2012) proclaim that even the bare intention of eWOM, such as thinking of sharing an impressive AR experience, improves the perceived value. In conclusion, if the AR experience is perceived as, for example, very impressive or very bad, and then shared by consumers, it can affect the subsequent consumer perceived value of the experience. Based on findings presented in this chapter, the following is proposed:

Proposition 8: Shared social experience and electronic word-of-mouth practices affect the AR value creation in ARSMAGs.

7. ADVERGAME VARIABLES

After reviewing advergame (40) literature and other sources (8) related to advergames during the process of creating the conceptual framework, 14 were found to mention the feeling of flow, 15 the limited-capacity model of attention, and 9 congruence as part of the consumer experience and perceived value. Based on these findings, the following is proposed:

Proposition 9: Advergame variables in AR value creation in ARSMAGs are proposed to include flow, limited-capacity model of attention, and congruence, each of which is considered a constituent of the value creation process.

These advergame variables related to AR value creation in ARSMAGs are reviewed and discussed in the following chapters. Chapter 7.1 presents the feeling of flow, its relation to AR's feeling of telepresence, and how it can affect the AR value creation process. Chapter 7.2 discusses the limited-capacity model of attention, which is related to AR value creation by the cognitive processing limits of the consumer. Chapter 7.3 focuses on the concept of congruence and how it can relate to AR value creation.

7.1 Flow

Research has shown that a wide range of activities can inspire a state of flow, including playing digital games (Hoffman and Novak, 2009; Bonaiuto *et al.*, 2016; Hamari *et al.*, 2016). Flow can be described as a deep, psychological mental state attained by a person who is optimally and happily absorbed into the activity they are performing at present (Csikszentmihalyi, 1975, 1990; Bonaiuto *et al.*, 2016). Flow equals the saying of *being in the zone*, often used in non-scientific contexts (Csikszentmihalyi, 1990; Carlson *et al.*, 2017). Hoffman and Novak (1996) asserted that the flow state is achieved by combining a high degree of skill, optimal challenge, arousal, concentration, interactivity, and telepresence (Carlson *et al.*, 2017). In advergames, the feeling of flow is simplified as “the relation between challenge and skills” (Roettl *et al.*, 2016, p. 279), and it is often

used to discuss the entertaining features of games (Roettl *et al.*, 2016). The influence of flow on mobile advergame effectiveness was studied by Catalán *et al.* (2019b), and their findings showed that flow had a great effect on the advergame's later success. The outcomes of achieving the state of flow include enhanced learning capabilities and momentarily gaining an exploratory mindset, in addition to creating more memorable and positive brand experiences (Hoffman and Novak, 1996, 2009; Bonaiuto *et al.*, 2016). All of these aspects of flow can be seen as consumer valuer creators through the consumer experience realms esthetics, entertainment, and education. As one aspect of gaining the feeling of flow is telepresence, the negative consequences on value creation described in Chapter 5.2 apply to flow as well.

Based on earlier findings on telepresence, it can be presumed that AR's value creation can suffer if the advergame creates too strong feelings of flow in the consumer. In another study Catalán *et al.* (2019a), repetitive play of the same advergame was found to not affect the player's state of flow, suggesting that, unlike AR experiences, repetitive advergame experiences do not decrease consumer perceived value. However, if the performance of the brands' online environment is not delivered efficiently, the flow state will be disrupted and the customer experience suffers (Carlson *et al.*, 2017). This means that badly designed or performing AR advergame experiences are likely to not induce flow, but instead create negative feelings toward the advertising brand, and lessen the perceived value. In accordance with the findings, the following is proposed:

Proposition 10: The feeling of flow created by advergames affects the AR value creation process in ARSMAGs.

7.2 The Limited-Capacity Model of Attention

Terlutter and Capella (2013, p. 98) name the limited capacity model of motivated mediated message processing (Lang, 2000) as one of the grounding theoretical models of all advergame research. The model claims that people's cognitive capacity is finite, meaning that the number of cognition-requiring tasks a person can simultaneously execute is limited (Lang, 2000; Lee and Faber, 2007; Terlutter and Capella, 2013; van Berlo *et al.*, 2021). For example, when a consumer is

subjected to an advertisement, they need to cognitively process the branded information without being distracted to be able to recall the advertisement afterward (van Berlo *et al.*, 2021). Advergimes that have too many distractions can therefore be detrimental to the advertising message, lessening the value of the advergime. Playing games requires constant and reactive thinking (Lee and Faber, 2007), which reduces the cognitive capacity available. According to Huh *et al.* (2015) and Daems *et al.* (2019), when commercial information recollection is compared, research has shown that messages embedded in advergimes are the least likely to be remembered out of all other advertising formats. Advergimes are often created in a way that the play instructions do not encourage the player to cognitively engage with the branded information or elements, meaning that other more important goal-oriented tasks, such as controlling the gameplay, ultimately prevent the advertising message from being processed by the consumer (Nelson *et al.*, 2006). As van Berlo *et al.* (2021) explain, unless the branded information is an integral part of the gameplay, every game mechanic featured in an advergime will divert the players' attention along with their cognitive capacity away from the commercial message.

With increase gaming experience, the cognitive capacity required to play the games decreases, meaning that the opposite will happen to players with less gaming experience (Vashisht and Sreejesh, 2015). If the players' level of involvement in the game climbs too high, meaning that the game is too challenging, the player will simply be unable to recognize or recall brand elements or the brand's message since the game takes up too much cognitive processing power (Lee and Faber, 2007; Terlutter and Capella, 2013; Vashisht and Sreejesh, 2015; van Berlo *et al.*, 2021). Fortunately, like Nelson *et al.* (2006) predicted in their study, Cauberghe and De Pelsmacker (2010) found that bigger brand prominence in games had a positive influence on brand recollection, indicating that some of the recall-diminishing effects can potentially be avoided by simply increasing brand presence in advergimes. To AR value creation this means that the advergime should be optimally challenging for the players, for AR to work as a value creator instead of an additional cognitive distraction that would, in turn, decrease the perceived value. According to these findings, the following is proposed:

Proposition 11: The limited capacity model of attention triggered in advergame playing sessions affects the AR value creation process in ARSMAGs.

7.3 Congruence

For each advergame, there is a right and wrong target audience, and the results of an advertising campaign's success depend on the advergame's congruence with its player base (Martí-Parreño *et al.*, 2013). Congruence, or the perceived harmony or compatibility, is a creator of consumer perceived value. In a controlled experiment Wise *et al.* (2008) found that when the thematic of the brand advertised was congruent with the advergame, players reportedly had a stronger positive connection with the brand post gameplay session. This created value for both the brand and the consumers. Wise *et al.* (2008) subsequently suggested that practitioners create advergames that engage customers in activities that mirror owning the marketed product. However, special care should be taken when evaluating whether advergames are the right marketing solution for the associated brand since the positive effects only appear when the advergame is seen as product-relevant (Wise *et al.*, 2008).

An opposite result on user-brand attitudes was recorded by Gross (2010) in a student-based study: When students played advergames with a high game-product congruity, their attitudes towards the brand worsened. It can be argued that the adverse attitudes resulted from the games being too obvious in their advertising messaging, resulting in players finding the perceived persuasion attempt itself as negative (Gross, 2010), and not the congruence between the product and the advergame. For AR value creation this can mean that if the advergame is deemed not congruent with the advertised product or brand and therefore not valuable, AR has no real effect on the value creation. On the other hand, if the advergame is perceived as congruent, so should the AR experience, in order to create value for ARSMAGs. The concluding proposition is as follows:

Proposition 12: The feeling of congruence between the advergame and the brand or advertised product impact the AR value creation process in ARSMAGs.

8. CONTRIBUTION AND CONCLUSIONS

This thesis aimed to propose a conceptual framework for studying the value creation of AR in ARSMAGs. To answer the research question on which augmented reality, advergames, and social media variables should be included in the study, an extensive review of existing literature and other relevant sources was conducted. The research was initiated by first selecting relevant keywords and then reviewing the findings and excluding sources deemed unrelated or lacking in quality. Practical applications of ARSMAGs were also reviewed. By following the conceptual framework building steps, presented by Jabareen (2009), findings from the data review were categorized, re-evaluated, and reiterated until the final variables were identified and presented in the conceptual framework in Chapter 4. The conceptual framework proposes that studies on how AR creates value in ARSMAGs should take into consideration the consumer value creation variables related to three different categories: AR experiences, social media, and advergames.

The findings from AR-related sources, discussed in Chapter 5, indicated that the most important value creator variables in AR experiences were esthetics, telepresence, satisfaction, novelty, and sensory interactions. The findings from social media-related sources, discussed in Chapter 6, suggest that the social media variables shared social experience and eWOM in theory have the greatest effect on AR-related value creation. Finally, from advergame-related sources discussed in Chapter 7, the findings indicated that the advergame variables flow, limited-capacity model of attention, and congruence potentially have the greatest impact on AR's value creation process in ARSMAGs.

In the following chapters, the research contribution and conclusions from the conceptual framework and this thesis are presented. In Chapter 8.1, the research is evaluated, and its limitations are discussed. In Chapter 8.2, the scientific contributions are discussed, and future research directions are offered. Chapter 8.3 focuses on discussing and indicating the research's practical implications. In the final Chapter 8.4, the thesis conclusions are presented.

8.1 Research Evaluation and Limitations

The goal of this study was to propose which consumer experience variables from three different subject areas, AR, social media, and advergames, should be taken into consideration when studying AR's consumer value creation process in ARSMAGs. The research question for the thesis was: "Which value creation related variables of advergames, social media, and AR should be included to study AR's value creation process in ARSMAGs?", which was answered through a thorough literature review, practical applications review, data analysis, and discussion. The answer was presented in the format of a conceptual framework, which is argued to work well when presenting new theories, combining knowledge from multiple areas of research, and presenting findings in an interpretive format (Levering, 2002; Jabareen, 2009). The thesis has succeeded in creating a conceptual framework that exhibits all of these aspects.

The conceptual framework proposed for studying AR's value creation is suggested to be sufficiently thorough, but as is the case with other conceptual models and frameworks, it requires further development, reiteration, and studies to confirm its pertinence. The findings, and especially data categorization, are also highly subjective. Therefore, the findings from this thesis must be confirmed by other studies in the future, and complete applicability to AR value creation studies in ARSMAGs currently cannot be verified. Furthermore, to investigate the validity of the variables presented in the framework, extensive additional research and academic validation are needed. However, as the purpose of this thesis was to identify and propose variables for studying value creation, it can be stated that all the research aims were achieved.

As this study was initiated from a very practical perspective, some of the more theoretical aspects of ARSMAGs and consumer value were most likely missed. As stated in this thesis, there are often differences between research and practical knowledge, especially in advertising contexts (De Pelsmacker, 2020). The study also only included one aspect of value creation in ARSMAGs, AR, leaving many possible value variables outside of the scope of the research. Another problem of this thesis was its schedule. The number of resources required to make a conceptual framework is incredibly extensive, meaning that

since only six months were reserved for the entire thesis process, some potentially relevant data had to be left out. Out of the little over five hundred potential sources, less than two hundred could be reviewed and used within this time. As the process was also iterative, due to the nature of conceptual framework building, the thesis was reorganized and rewritten multiple times. If there had been existing studies to build upon, the process probably would have been easier and faster. However, even within such a short time, this thesis managed to indicate entirely new subject areas to study through ARSMAGs, with great research and practical potential.

The main limits of this study are its conceptual and interpretive format, the subjective nature of the data gathering, analysis, and categorization, in addition to the concept of consumer perceived value. The conceptual framework can be freely interpreted by researchers, and their interpretations will also be subjective to their views. Different researchers would likely have selected different sources of data, interpreted and categorized the results differently, and reported different findings, based on what variables of the consumer experience and value creation they wish to emphasize with their studies. Value creation itself is highly adaptive and interpretive, so studies concerning value are bound to be almost always qualitative. However, conceptual qualitative research, such as this thesis, is a good starting point when the research topic is new since it is good at combining different theoretical concepts and finding trends that might be missed in more quantitative research.

8.2 Scientific Contribution and Future Research

This study is, to our knowledge, the first research conducted on the popular advertising method ARSMAGs. Through the definitions of AR and advergames, this study was also able to define what ARSMAGs are. The thesis has presented researchers with a propositional conceptual framework to study AR's value creation, which when validated further, will hopefully lead to new theories and models based on it. This thesis has also proposed that AR's value creation process in ARSMAGs is affected by esthetics, telepresence, satisfaction, novelty, sensory interactions, eWOM, shared social experience, flow, limited-capacity model of attention, and congruence, which have previously not been academically

explored in relation to each other. Overall, the conceptual framework presented in this thesis is a great starting point for AR's value creation process studies in ARSMAGs, along with other similar topics. During the data review, several gaps in studies were found related to ARSMAGs, so future research directions are proposed in Table 3.

RESEARCH TOPICS	RESEARCH AREA
<p>The effect of...</p> <ul style="list-style-type: none"> • Brand / product congruence • AR familiarity / perceived novelty value • Advertising / AR attitude • Perceived esthetic pleasure • Social identity / background (e.g., age, culture, language, socio-economic status) • Sensory features / interactivity (e.g., touch, taste) • Advergame difficulty • Level of gaming experience • Previous/continuous exposure to AR • Consumer persuasion knowledge • Hardware used (e.g., AR wearables) • Software / hardware performance • Social presence • Game design / genre / visual style • Publishing platform (e.g., Instagram, Facebook, Snapchat, TikTok) 	<p style="text-align: center;">...on ARSMAG:</p> <p style="text-align: center;">Effectiveness / Persuasion</p> <p style="text-align: center;">•</p> <p style="text-align: center;">Attitudes</p> <p style="text-align: center;">•</p> <p style="text-align: center;">eWOM / Shared Social Experience / Consumer-Created Marketing</p> <p style="text-align: center;">•</p> <p style="text-align: center;">Satisfaction</p> <p style="text-align: center;">•</p> <p style="text-align: center;">Immersion / Escapism / Flow / Telepresence</p> <p style="text-align: center;">•</p> <p style="text-align: center;">(Consumer) Value Creation</p> <p style="text-align: center;">•</p> <p style="text-align: center;">Recall / Cognitive Capacity</p>

Table 3. Suggested future ARSMAG research directions.

In general, ARSMAG research would greatly benefit from research on its definition and its relation to games, gamification, and game studies. Additionally, variables related to marketing and advertising theories and models should also be considered in future research, since they are related to the effectiveness of ARSMAGs as advertising campaigns. As an increasingly popular but currently under-researched advertising medium, ARSMAGs deserve more academic interest. By studying the effects and causalities of these engaging and playful ads, researchers can also help practitioners improve their ARSMAG campaigns and gain better results from them.

8.3 Practical Implications

Understanding how AR creates value is very important when developing gamified advertising campaigns. If the variables affecting the consumer in experiencing ARSMAGs are not considered, the advertising results will not be as good, and can even be detrimental to the brand image through negative value creation. Conflicting effects such as the limited-capacity model of attention and AR's rich sensory interactions, combined with advergames that are too challenging for the players will ultimately waste ARSMAG development resources, lessening the brands' return of investment in the process. By considering the variables proposed in this thesis, practitioners can further enhance their craft by creating increasingly engaging, immersive, and valuable ARSMAG campaigns.

8.4 Conclusion

Despite the growing interest in and use of ARSMAGs in marketing campaigns, no academic studies currently exist on the topic. Furthermore, even though AR is increasingly being used to enhance consumer value in commercial contexts, the conceptualization of AR's value creation process remains unclear, especially in ARSMAGs. Through an extensive review of existing knowledge of AR, advergames, social media, and ARSMAGs, this thesis has contributed to the subject and surrounding phenomenon by proposing a conceptual framework for studying AR's value in ARSMAGs. This framework can be used by researchers and practitioners to better understand the phenomena related to AR, value creation, and ARSMAGs. This thesis has also revealed gaps in current studies, providing multiple directions and topic areas for further research. Even though this study and its findings are conceptual, subjective, and interpretive, the results are also highly adaptable and easily applicable to future ARSMAG research and practices.

REFERENCES

- Alcañiz, M., Bigné, E. and Guixeres, J. (2019) 'Virtual Reality in Marketing: A Framework, Review, and Research Agenda', *Frontiers in Psychology*, 10:1530. doi: 10.3389/fpsyg.2019.01530.
- Altmeyer, M., Dernbecher, K., Hnatovskiy, V., Schubhan, M., Lessel, P. and Krüger, A. (2019) 'Gamified Ads: Bridging the Gap Between User Enjoyment and the Effectiveness of Online Ads', in *CHI Conference on Human Factors in Computing Systems Proceedings (CHI 2019), May 4–9*. Glasgow, Scotland: ACM, New York, pp. 1–12. doi: 10.1145/3290605.3300412.
- Anderson, E. (2010) *Social Media Marketing*. 1st edn. Berlin: Springer. doi: 10.1007/978-3-642-13299-5.
- Anderson, K. E. (2016) 'Getting acquainted with social networks and apps: Gotta catch them all? Augmented reality gaming apps', *Library Hi Tech News*, 33(10), pp. 6–8. doi: 10.1108/LHTN-10-2016-0052.
- Appel, G., Grewal, L., Hadi, R. and Stephen, A. T. (2020) 'The future of social media in marketing', *Journal of the Academy of Marketing Science*, 48(1), pp. 79–95. doi: 10.1007/s11747-019-00695-1.
- Apperley, T. and Moore, K. (2019) 'Haptic ambience: Ambient play, the haptic effect and co-presence in Pokémon GO', *Convergence*, 25(1), pp. 6–17. doi: 10.1177/1354856518811017.
- Arlı, D. and Dietrich, T. (2017) 'Can Social Media Campaigns Backfire? Exploring Consumers' Attitudes and Word-of-Mouth Toward Four Social Media Campaigns and Its Implications on Consumer-Campaign Identification', *Journal of Promotion Management*, 23(6), pp. 834–850. doi: 10.1080/10496491.2017.1323259.
- Azuma, R. T. (1997) 'A Survey of Augmented Reality', *Presence: Teleoperators and Virtual Environments*, 6(4), pp. 355–385.
- Bandura, A. (1986) *Social Foundations of Thought and Action : a Social Cognitive Theory*. Englewood Cliffs: Prentice-Hall.

- Bayer, J. B., Ellison, N. B., Schoenebeck, S. Y. and Falk, E. B. (2016) 'Sharing the small moments: ephemeral social interaction on Snapchat', *Information Communication and Society*, 19(7), pp. 956–977. doi: 10.1080/1369118X.2015.1084349.
- van Berlo, Z. M. C., van Reijmersdal, E. A. and Eisend, M. (2021) 'The Gamification of Branded Content: A Meta-Analysis of Advergame Effects', *Journal of Advertising*, pp. 1–18. doi: 10.1080/00913367.2020.1858462.
- van Berlo, Z. M. C., van Reijmersdal, E. A. and Rozendaal, E. (2020) 'Adolescents and handheld advertising: The roles of brand familiarity and smartphone attachment in the processing of mobile advergames', *Journal of Consumer Behaviour*, 19(5), pp. 438–449. doi: 10.1002/cb.1822.
- Bianchi, C. and Andrews, L. (2018) 'Consumer engagement with retail firms through social media: an empirical study in Chile', *International Journal of Retail and Distribution Management*, 46(4), pp. 364–385. doi: 10.1108/IJRDM-02-2017-0035.
- Biocca, F. (1997) 'The Cyborg's Dilemma: Progressive Embodiment in Virtual Environments [1]', *Journal of Computer-Mediated Communication*, 3(2). doi: 10.1111/j.1083-6101.1997.tb00070.x.
- Bonaiuto, M., Mao, Y., Roberts, S., Psalti, A., Ariccio, S., Cancellieri, U. G. and Csikszentmihalyi, M. (2016) 'Optimal Experience and Personal Growth: Flow and the Consolidation of Place Identity', *Frontiers in Psychology*, 7(NOV), pp. 1–12. doi: 10.3389/fpsyg.2016.01654.
- Boyd, S. G., Pyne, B. and Kane, S. F. (2018) *Video Game Law : Everything You Need to Know about Legal and Business Issues in the Game Industry*. CRC Press LLC.
- Brakus, J. J., Schmitt, B. H. and Zarantonello, L. (2009) 'Brand Experience: What Is It? How Is It Measured? Does It Affect Loyalty?', *Journal of Marketing*, 73(3), pp. 52–68. doi: 10.1509/jmkg.73.3.52.
- Breidbach, C. F., Brodie, R. and Hollebeek, L. (2014) 'Beyond virtuality: From engagement platforms to engagement ecosystems', *Managing Service Quality*, 24(6), pp. 592–611. doi: 10.1108/MSQ-08-2013-0158.

Caboni, F. and Hagberg, J. (2019) 'Augmented reality in retailing: a review of features, applications and value', *International Journal of Retail and Distribution Management*, 47(11), pp. 1125–1140. doi: 10.1108/IJRDM-12-2018-0263.

Candy Crush (2020) *CCS Jumping*. [AR Filter Game]. Snapchat: Candy Crush. Available at:

https://web.archive.org/web/20210424173919if_/https://lens.snapchat.com/875584aba0cc4bbb88f0a276a5aa9188.

Carlson, J., De Vries, N. J., Rahman, M. M. and Taylor, A. (2017) 'Go with the flow: Engineering flow experiences for customer engagement value creation in branded social media environments', *Journal of Brand Management*, 24(4), pp. 334–348. doi: 10.1057/s41262-017-0054-4.

Carmigniani, J. and Furht, B. (2011) 'Augmented Reality: An Overview', in Furht, B. (ed.) *Handbook of Augmented Reality*. New York: Springer. doi: 10.1007/978-1-4614-0064-6_1.

Carrozzi, A., Chylinski, M., Heller, J., Hilken, T., Keeling, D. I. and de Ruyter, K. (2019) 'What's Mine Is a Hologram? How Shared Augmented Reality Augments Psychological Ownership', *Journal of Interactive Marketing*, 48(August), pp. 71–88. doi: 10.1016/j.intmar.2019.05.004.

Catalán, S., Martínez, E. and Wallace, E. (2019a) 'Analysing mobile advergaming effectiveness: the role of flow, game repetition and brand familiarity', *Journal of Product and Brand Management*, 28(4), pp. 502–514. doi: 10.1108/JPBM-07-2018-1929.

Catalán, S., Martínez, E. and Wallace, E. (2019b) 'The role of flow for mobile advergaming effectiveness', *Online Information Review*, 43(7), pp. 1228–1244. doi: 10.1108/OIR-06-2018-0198.

Cauberghe, V. and De Pelsmacker, P. (2010) 'Advergaming', *Journal of Advertising*, 39(1), pp. 5–18. doi: 10.2753/JOA0091-3367390101.

Cheng, P. Y. K. (2014) 'Customer Perceived Values and Consumer Decisions: An Explanatory Model', in Musso, F. and Druica, E. (eds) *Handbook of Research on Retailer-Consumer Relationship Development*. Hershey: IGI Global, pp. 1–12.

- Chesbrough, H., Lettl, C. and Ritter, T. (2018) 'Value Creation and Value Capture in Open Innovation', *Journal of Product Innovation Management*, 35(6), pp. 930–938. doi: 10.1111/jpim.12471.
- Chu, S. C. and Kim, Y. (2011) 'Determinants of consumer engagement in electronic Word-Of-Mouth (eWOM) in social networking sites', *International Journal of Advertising*, 30(1), pp. 47–75. doi: 10.2501/IJA-30-1-047-075.
- Chu, S. C. and Sung, Y. (2015) 'Using a consumer socialization framework to understand electronic word-of-mouth (eWOM) group membership among brand followers on Twitter', *Electronic Commerce Research and Applications*, 14(4), pp. 251–260. doi: 10.1016/j.elerap.2015.04.002.
- Chylinski, M., Heller, J., Hilken, T., Keeling, D. I., Mahr, D. and de Ruyter, K. (2020) 'Augmented reality marketing: A technology-enabled approach to situated customer experience', *Australasian Marketing Journal*, 28(4), pp. 374–384. doi: 10.1016/j.ausmj.2020.04.004.
- Clark, M. (2021) *Snapchat's Spectacles might become true AR glasses this time - and there's a drone*, *The Verge*. Available at: <https://web.archive.org/web/20210516063753/https://www.theverge.com/2021/3/30/22359117/snap-inc-snapchat-spectacles-4-drone-developers-creators> (Accessed: 5 May 2021).
- Corbin, J. and Strauss, A. L. (1990) *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park: SAGE Publications.
- Costley, D. (2020) *The Future of Gaming Is on Your Face, on Instagram, OneZero*. Available at: <https://onezero.medium.com/the-future-of-gaming-is-on-your-face-on-instagram-a3f9332ddd7> (Accessed: 10 October 2020).
- Coyle, J. R. and Thorson, E. (2001) 'The effects of progressive levels of interactivity and vividness in web marketing sites', *Journal of Advertising*, 30(3), pp. 65–77. doi: 10.1080/00913367.2001.10673646.
- Craig, A. (2013) *Understanding Augmented Reality: Concepts and Applications*. Oxford: Elsevier Science & Technology.
- Csikszentmihalyi, M. (1975) *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.

- Csikszentmihalyi, M. (1990) *Flow: The Psychology of Optimal Experience*, *Academy of Management Review*. New York: Harper & Row.
- Daems, K., De Pelsmacker, P. and Moons, I. (2019) 'The effect of ad integration and interactivity on young teenagers' memory, brand attitude and personal data sharing', *Computers in Human Behavior*, 99, pp. 245–259. doi: 10.1016/j.chb.2019.05.031.
- Derbaix, C. and Vanhamme, J. (2003) 'Inducing word-of-mouth by eliciting surprise: a pilot investigation', *Journal of Economic Psychology*, 24(1), pp. 99–116.
- Deterding, S., Dixon, D., Khaled, R. and Nacke, L. (2011) 'From Game Design Elements to Gamefulness: Defining Gamification', in *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, MindTrek 2011*. Tampere, Finland, pp. 9–15. doi: 10.1145/2181037.2181040.
- Dillon, R. (2020) 'Introduction', in Dillon, R. (ed.) *The Digital Gaming Handbook*. 1st edn. Boca Raton: CRC Press.
- Dixon, J., Durrheim, K. and Tredoux, C. (2005) 'Beyond the optimal contact strategy: A reality check for the contact hypothesis', *American Psychologist*, 60(7), pp. 697–711. doi: 10.1037/0003-066X.60.7.697.
- Dodoo, N. A. and Youn, S. (2021) 'Snapping and chatting away: Consumer motivations for and outcomes of interacting with Snapchat AR ad lens', *Telematics and Informatics*, 57. doi: 10.1016/j.tele.2020.101514.
- Doll, W. J. and Torkzadeh, G. (1988) 'The measurement of end-user computing satisfaction', *MIS Quarterly*, 12(2), pp. 259–274. doi: 10.2307/248851.
- Dyer, J. H., Singh, H. and Hesterly, W. S. (2018) 'The relational view revisited: A dynamic perspective on value creation and value capture', *Strategic Management Journal*, 39(12), pp. 3140–3162. doi: 10.1002/smj.2785.
- Edell, J. A. and Staelin, R. (1983) 'The Information Processing of Pictures in Print Advertisements', *Journal of Consumer Research*, 10(1), pp. 45–61. doi: 10.1086/208944.
- Efron, S. E. and Ravid, R. (2019) *Writing the Literature Review : a Practical*

Guide. New York: The Guildford Press.

Ericsson ConsumerLab (2019) 'Ready, steady, game! Is augmented reality (AR) the next level of gaming?', in *An Ericsson ConsumerLab insight report*. Stockholm: Ericsson AB. Available at: <https://www.ericsson.com/en/reports-and-papers/consumerlab/reports/ready-steady-game>.

Erkan, I. and Evans, C. (2016) 'The influence of eWOM in social media on consumers' purchase intentions: An extended approach to information adoption', *Computers in Human Behavior*, 61, pp. 47–55. doi: 10.1016/j.chb.2016.03.003.

Flavián, C., Ibáñez-Sánchez, S. and Orús, C. (2019) 'The impact of virtual, augmented and mixed reality technologies on the customer experience', *Journal of Business Research*, 100, pp. 547–560. doi: 10.1016/j.jbusres.2018.10.050.

Flecha-Ortíz, J., Santos-Corrada, M., Dones-González, V., López-González, E. and Vega, A. (2021) 'Millennials & Snapchat: Self-expression through its use and its influence on purchase motivation', *Journal of Business Research*, 125, pp. 798–805. doi: 10.1016/j.jbusres.2019.03.005.

Gentile, C., Spiller, N. and Noci, G. (2007) 'How to Sustain the Customer Experience: An Overview of Experience Components that Co-create Value With the Customer', *European Management Journal*, 25(5), pp. 395–410. doi: 10.1016/j.emj.2007.08.005.

Glaser, B. G. and Strauss, A. L. (1967) *The discovery of grounded theory : strategies for qualitative research*. Chicago: Aldine.

Goebert, C. (2020) 'Augmented Reality in Sport Marketing', *Sports Innovation Journal*, 1, pp. 134–151. doi: 10.18060/24227.

Grigorovici, D. M. and Constantin, C. D. (2004) 'Experiencing Interactive Advertising beyond Rich Media', *Journal of Interactive Advertising*, 5(1), pp. 22–36. doi: 10.1080/15252019.2004.10722091.

Grönroos, C. (2008) 'Service logic revisited: Who creates value? And who co-creates?', *European Business Review*, 20(4), pp. 298–314. doi: 10.1108/09555340810886585.

Groove Jones (2020) *Social App AR 101 – An Insider's Guide to Augmented*

- Reality Using Social Apps*, GrooveJones.com. Available at: <https://web.archive.org/web/20210429070338/https://www.groovejones.com/social-app-ar-101-an-insiders-guide-to-augmented-reality-using-social-apps/> (Accessed: 29 April 2021).
- Gross, M. L. (2010) 'Advergaming and the effects of game-product congruity', *Computers in Human Behavior*, 26(6), pp. 1259–1265. doi: 10.1016/j.chb.2010.03.034.
- Gupton, N. (2020) *What's the difference between AR, VR, and MR*, The Franklin Institute. Edited by P. J. Kiger. Available at: <https://web.archive.org/web/20210424153807/https://www.fi.edu/difference-between-ar-vr-and-mr> (Accessed: 24 April 2021).
- Hackl, C. and Wolfe, S. G. (2017) *Marketing New Realities: An Introduction to Virtual Reality & Augmented Reality Marketing, Branding, & Communications*. Toronto: Meraki Press.
- Hamari, J. (2013) 'Transforming homo economicus into homo ludens: A field experiment on gamification in a utilitarian peer-to-peer trading service', *Electronic Commerce Research and Applications*, 12(4), pp. 236–245. doi: 10.1016/j.elerap.2013.01.004.
- Hamari, J. (2017) 'Do badges increase user activity? A field experiment on the effects of gamification', *Computers in Human Behavior*, 71, pp. 469–478. doi: 10.1016/j.chb.2015.03.036.
- Hamari, J. (2019) 'Gamification', in Ritzer, G. and Rojek, C. (eds) *The Blackwell Encyclopedia of Sociology*. New York: John Wiley & Sons, pp. 1–3.
- Hamari, J., Hassan, L. and Dias, A. (2018) *Gamification, quantified-self or social networking? Matching users' goals with motivational technology*, *User Modeling and User-Adapted Interaction*. doi: 10.1007/s11257-018-9200-2.
- Hamari, J. and Keronen, L. (2017) 'Why do people play games? A meta-analysis', *International Journal of Information Management*, 37(3), pp. 125–141. doi: 10.1016/j.ijinfomgt.2017.01.006.
- Hamari, J., Shernoff, D. J., Rowe, E., Coller, B., Asbell-Clarke, J. and Edwards, T. (2016) 'Challenging games help students learn: An empirical study on

- engagement, flow and immersion in game-based learning', *Computers in Human Behavior*, 54, pp. 170–179. doi: 10.1016/j.chb.2015.07.045.
- Han, S. L., An, M., Han, J. J. and Lee, J. (2020) 'Telepresence, time distortion, and consumer traits of virtual reality shopping', *Journal of Business Research*, 118, pp. 311–320. doi: 10.1016/j.jbusres.2020.06.056.
- Hanssens, D. M. (2018) 'The value of empirical generalizations in marketing', *Journal of the Academy of Marketing Science*, 46(1), pp. 6–8. doi: 10.1007/s11747-017-0567-0.
- Hanssens, D. M. and Pauwels, K. H. (2016) 'Demonstrating the value of marketing', *Journal of Marketing*, 80(6), pp. 173–190. doi: 10.1509/jm.15.0417.
- Harwood, T. and Garry, T. (2015) 'An investigation into gamification as a customer engagement experience environment', *Journal of Services Marketing*, 29(6–7), pp. 533–546. doi: 10.1108/JSM-01-2015-0045.
- Hawker, K. and Carah, N. (2020) 'Snapchat's augmented reality brand culture: sponsored filters and lenses as digital piecework', *Continuum: Journal of Media & Cultural Studies*. doi: 10.1080/10304312.2020.1827370.
- Heath, A. (2021) *Snap Plans Hardware Push With AR Spectacles , Drone, The Information*. Available at: https://web.archive.org/web/20210516063828if_/https://www.theinformation.com/articles/snap-plans-hardware-push-with-ar-spectacles-drone (Accessed: 5 May 2021).
- Hennig-Thurau, T., Gwinner, K. P., Walsh, G. and Gremler, D. D. (2004) 'Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet?', *Journal of Interactive Marketing*, 18(1), pp. 38–52. doi: 10.1002/dir.10073.
- Hinsch, C., Felix, R. and Rauschnabel, P. A. (2020) 'Nostalgia beats the wow-effect: Inspiration, awe and meaningful associations in augmented reality marketing', *Journal of Retailing and Consumer Services*, 53(4), p. 101987. doi: 10.1016/j.jretconser.2019.101987.
- Hofacker, C. F., de Ruyter, K., Lurie, N. H., Manchanda, P. and Donaldson, J. (2016) 'Gamification and Mobile Marketing Effectiveness', *Journal of Interactive*

Marketing, 34, pp. 25–36. doi: 10.1016/j.intmar.2016.03.001.

Hoffman, D. L. and Novak, T. P. (1996) 'Marketing in hypermedia computer-mediated environments: Conceptual foundations', *Journal of Marketing*, 60(3), pp. 50–68. doi: 10.2307/1251841.

Hoffman, D. L. and Novak, T. P. (2009) 'Flow Online: Lessons Learned and Future Prospects', *Journal of Interactive Marketing*, 23(1), pp. 23–34. doi: 10.1016/j.intmar.2008.10.003.

Hootsuite and We Are Social (2021) *Digital 2021 Global Overview Report*. Available at: <https://datareportal.com/reports/digital-2021-global-overview-report> (Accessed: 3 March 2021).

Hopp, T. and Gangadharbatla, H. (2016) 'Novelty Effects in Augmented Reality Advertising Environments: The Influence of Exposure Time and Self-Efficacy', *Journal of Current Issues & Research in Advertising*, 37(2), pp. 113–130. doi: 10.1080/10641734.2016.1171179.

Huh, J., Suzuki-Lambrech, Y., Lueck, J. and Gross, M. (2015) 'Presentation matters: Comparison of cognitive effects of DTC prescription drug advergaming, websites, and print ads', *Journal of Advertising*, 44(4), pp. 360–374. doi: 10.1080/00913367.2014.1003666.

Huotari, K. and Hamari, J. (2017) 'A definition for gamification: anchoring gamification in the service marketing literature', *Electronic Markets*, 27(1), pp. 21–31. doi: 10.1007/s12525-015-0212-z.

Jabareen, Y. (2009) 'Building a Conceptual Framework: Philosophy, Definitions, and Procedure', *International Journal of Qualitative Methods*, 8(4), pp. 49–62. doi: 10.1177/160940690900800406.

Janssen, C. (2018) *Consumer Acceptance of Mobile Augmented Reality Shopping Applications in Stationary Retail Trade*. Mid Sweden University. Available at: <http://urn.kb.se/resolve?urn=urn:nbn:se:miun:diva-34171>.

Javornik, A. (2016) 'Augmented reality: Research agenda for studying the impact of its media characteristics on consumer behaviour', *Journal of Retailing and Consumer Services*, 30, pp. 252–261. Available at: <https://doi.org/10.1016/j.jretconser.2016.02.004>.

- Jung, T. H., tom Dieck, M. C., Lee, H. and Chung, N. (2016) 'Effects of virtual reality and augmented reality on visitor experiences in museums', in Inversini, A. and Schegg, R. (eds) *Information and Communication Technologies in Tourism 2016: Proceedings of the International Conference in Bilbao, Spain*. 1st edn. Cham: Springer International Publishing, pp. 621–635.
- Kaikati, A. M. and Kaikati, J. G. (2004) 'Stealth marketing: How to reach consumers surreptitiously', *California Management Review*, 46(4). doi: 10.2307/41166272.
- Kang, M. and Gretzel, U. (2012) 'Effects of podcast tours on tourist experiences in a national park', *Tourism Management*, 33(2), pp. 440–455. doi: 10.1016/j.tourman.2011.05.005.
- Kim, T. and Biocca, F. (1997) 'Telepresence via Television: Two Dimensions of Telepresence May Have Different Connections to Memory and Persuasion.[1]', *Journal of Computer-Mediated Communication*, 3(2). doi: 10.1111/j.1083-6101.1997.tb00073.x.
- King (2012) 'Candy Crush Saga'. [Mobile iOS]. App Store: King.
- Kinnunen, J., Taskinen, K. and Mäyrä, F. (2020) 'Pelaajabarometri 2020 : Pelaamista koronan aikaan', *TRIM Research Reports*, 29. Available at: <https://trepo.tuni.fi/handle/10024/123831>.
- Kipper, G. and Rampolla, J. (2012) *Augmented Reality : An Emerging Technologies Guide to AR*. Saint Louis: Elsevier Science & Technology Books.
- Kotler, P., Armstrong, G., Harris, L. C. and Piercy, N. (2017) *Principles of Marketing European Edition 7th Edition*. 7th edn. Harlow, United Kingdom: Pearson Education, Limited.
- de la Hera, T. (2019) *Digital Gaming and the Advertising Landscape*. Amsterdam: Amsterdam University Press. doi: 10.5117/9789462987159.
- Lang, A. (2000) 'The limited capacity model of mediated message processing', *Journal of Communication*, 50(1), pp. 46–70. doi: 10.1111/j.1460-2466.2000.tb02833.x.
- Lee, A. (2019) 'What Facebook's Spark AR Push Means for Fashion and Beauty', *WWD: Women's Wear Daily*, p. 13.

Lee, H., Chung, N. and Jung, T. (2015) 'Examining the Cultural Differences in Acceptance of Mobile Augmented Reality: Comparison of South Korea and Ireland', in Tussyadiah, I. and Inversini, A. (eds) *Information and Communication Technologies in Tourism 2015 : Proceedings of the International Conference in Lugano, Switzerland, February 3 - 6 2015*. Cham: Springer International Publishing AG, pp. 477–491. doi: 10.1007/978-3-319-14343-9_35.

Lee, M. and Faber, R. J. (2007) 'Effects of product placement in on-line games on brand memory: A perspective of the limited-capacity model of attention', *Journal of Advertising*, 36(4), pp. 75–90. doi: 10.2753/JOA0091-3367360406.

Lens Studio (no date) *Guides, Lensstudio.Snapchat.com*. Available at: <https://web.archive.org/web/20210429064201/https://lensstudio.snapchat.com/guides/> (Accessed: 29 April 2021).

Lenslist (2020) *Social media AR games is the latest trend in gaming, Lenslist Blog*. Available at: <https://web.archive.org/web/20210424140923/https%3A%2F%2Fblog.lenslist.co%2F2020%2F10%2F12%2Fsocial-media-ar-games-is-the-latest-trend-in-gaming%2F> (Accessed: 24 April 2021).

Levering, B. (2002) 'Concept Analysis as Empirical Method', *International Journal of Qualitative Methods*, 1(1), pp. 35–48. doi: 10.1177/160940690200100104.

Li, F., Larimo, J. and Leonidou, L. C. (2021) 'Social media marketing strategy: definition, conceptualization, taxonomy, validation, and future agenda', *Journal of the Academy of Marketing Science*, 49, pp. 51–70. doi: 10.1007/s11747-020-00733-3.

Liao, T. (2015) 'Augmented or admented reality? The influence of marketing on augmented reality technologies', *Information, Communication & Society*, 18(3), pp. 310–326. doi: 10.1080/1369118X.2014.989252.

Lombard, M. and Ditton, T. (1997) 'At the Heart of it All: The Concept of Presence', *Journal of Computer-Mediated Communication*, 3(2). doi: 10.1111/j.1083-6101.1997.tb00072.x.

- Marchand, A. and Hennig-Thurau, T. (2013) 'Value creation in the video game industry: Industry economics, consumer benefits, and research opportunities', *Journal of Interactive Marketing*, 27(3), pp. 141–157. doi: 10.1016/j.intmar.2013.05.001.
- Martí-Parreño, J., Aldás-Manzano, J., Currás-Pérez, R. and Sánchez-García, I. (2013) 'Factors contributing brand attitude in advergames: Entertainment and irritation', *Journal of Brand Management*, 20(5), pp. 374–388. doi: 10.1057/bm.2012.22.
- Martin, K. D. and Smith, N. C. (2008) 'Commercializing Social Interaction: The Ethics of Stealth Marketing', *Journal of Public Policy & Marketing*, 27(1), pp. 45–56. doi: 10.2139/ssrn.1111976.
- Mathlin, L. (2020) *What Is augmented reality?*, *Blog.arilyn.com*. Available at: <https://web.archive.org/web/20210424163019/https://blog.arilyn.com/what-is-augmented-reality> (Accessed: 24 April 2021).
- Mäyrä, F. (2017) 'Pokémon GO: Entering the Ludic Society', *Mobile Media & Communication*, 5(1), pp. 47–50. doi: 10.1177/2050157916678270.
- Mäyrä, F. (2020) 'The Hybrid Agency of Hybrid Play', in de Souza e Silva, A. and Glover-Rijkse, R. (eds) *Hybrid Play: Crossing Boundaries in Game Design, Player Identities and Play Spaces*. London and New York: Routledge. doi: 10.4324/9780367855055-8.
- Mäyrä, F. and Alha, K. (2020) 'Mobile Gaming', in Kowert, R. and Quandt, T. (eds) *The Video Game Debate 2: Revisiting the Physical, Social, and Psychological Effects of Video Games*. New York and Milton Park: Routledge. doi: 10.4324/9780429351815-9.
- McCaffrey, M. (2020) 'The Evolution and Social Impact of Video Game Economics', *The Information Society*, 36(3), pp. 177–180. doi: 10.1080/01972243.2020.1738732.
- Merrilees, B. (2016) 'Interactive brand experience pathways to customer-brand engagement and value co-creation', *Journal of Product and Brand Management*, 25(5), pp. 402–408. doi: 10.1108/JPBM-04-2016-1151.
- Miles, M. B. and Huberman, A. M. (1994) *Qualitative data analysis: An*

expanded source book. 2nd edn. Newbury Park: SAGE Publications.

Milgram, P. and Kishino, F. (1994) 'A Taxonomy of Mixed Reality Visual Displays', *IEICE Transactions on Information Systems*, E77-D(12), pp. 1321–1329.

Milgram, P., Takemura, H., Utsumi, A. and Kishino, F. (1995) 'Augmented reality: A class of displays on the reality-virtuality continuum', in *Proceedings of SPIE*. 1995 SPIE, pp. 282–292. doi: 10.1117/12.197321.

Miller, G. R. (2014) 'On Being Persuaded: Some Basic Distinctions', in Dillard, J. P. and Pfau, M. W. (eds) *The Persuasion Handbook: Developments in Theory and Practice*. 2nd edn. Thousand Oaks: SAGE Publications, pp. 3–16.

Mishler, E. (1990) 'Validation in Inquiry-Guided Research: The Role of Exemplars in Narrative Studies', *Harvard Educational Review*, 60(4), pp. 415–442.

Muntinga, D. G., Moorman, M. and Smit, E. G. (2011) 'Introducing COBRAs: Exploring motivations for brand-related social media use', *International Journal of Advertising*, 30(1), pp. 13–46. doi: 10.2501/IJA-30-1-013-046.

Nelson, M. R., Yaros, R. A. and Keum, H. (2006) 'Examining the influence of telepresence on spectator and player processing of real and fictitious brands in a computer game', *Journal of Advertising*, 35(4), pp. 87–99. doi: 10.2753/JOA0091-3367350406.

O' Mahony, S. (2015) 'A Proposed Model for the Approach to Augmented Reality Deployment in Marketing Communications', *Procedia - Social and Behavioral Sciences*, 175, pp. 227–235. doi: 10.1016/j.sbspro.2015.01.1195.

Okazaki, S. and Yagüe, M. J. (2012) 'Responses to an advergaming campaign on a mobile social networking site: An initial research report', *Computers in Human Behavior*, 28, pp. 78–86. doi: 10.1016/j.chb.2011.08.013.

Orlikowski, W. J. (1993) 'CASE tools as organizational change: Investigating incremental and radical changes in systems development.', *MIS Quarterly*, 17, pp. 309–340.

Parekh, P., Patel, S., Patel, N. and Shah, M. (2020) 'Systematic review and meta-analysis of augmented reality in medicine, retail, and games', *Visual*

Computing for Industry, Biomedicine, and Art, 3(21). doi: 10.1186/s42492-020-00057-7.

Parra-Arnau, J., Achara, J. P. and Castelluccia, C. (2017) 'MyAdChoices: Bringing Transparency and Control to Online Advertising', *ACM Transactions on the Web*, 11(1, Article 7). doi: 10.1145/2996466.

De Pelsmacker, P. (2020) 'What is wrong with advertising research and how can we fix it?', *International Journal of Advertising*. doi: 10.1080/02650487.2020.1827895.

Pentina, I., Amialchuk, A. and Taylor, D. G. (2011) 'Exploring effects of online shopping experiences on browser satisfaction and e-tail performance', *International Journal of Retail & Distribution Management*, 39(10), pp. 742–758. doi: 10.1108/09590551111162248.

Petit, O., Cheok, A. D., Spence, C., Velasco, C. and Karunanayaka, K. (2015) 'Sensory marketing in light of new technologies', in *Proceedings of the 12th International Conference on Advances in Computer Entertainment Technology*. Iskandar, Malaysia, pp. 1–4. doi: 10.1145/2832932.2837006.

Petty, R. D. and Craig Andrews, J. (2008) 'Covert Marketing Unmasked: A Legal and Regulatory Guide for Practices That Mask Marketing Messages', *Journal of Public Policy and Marketing*, 27(1), pp. 7–18. doi: 10.1509/jppm.27.1.7.

Phua, J. and Kim, J. (Jay) (2018) 'Starring in your own Snapchat advertisement: Influence of self-brand congruity, self-referencing and perceived humor on brand attitude and purchase intention of advertised brands', *Telematics and Informatics*, 35(5), pp. 1524–1533. doi: 10.1016/j.tele.2018.03.020.

Pine II, B. J. and Gilmore, J. H. (1998) 'Welcome to the experience economy', *Harvard Business Review*, 76(4), pp. 97–105.

Pine II, B. J. and Gilmore, J. H. (2013) 'The experience economy: Past, present and future', *Handbook on the Experience Economy*, (January 2013), pp. 21–44. doi: 10.4337/9781781004227.00007.

Poels, K., Janssens, W. and Herrewijn, L. (2013) 'Play Buddies or Space Invaders? Players' Attitudes Toward In-Game Advertising', *Journal of*

Advertising, 42(2–3), pp. 204–218. doi: 10.1080/00913367.2013.774600.

Rauschnabel, P. A., Felix, R. and Hinsch, C. (2019) 'Augmented reality marketing: How mobile AR-apps can improve brands through inspiration', *Journal of Retailing and Consumer Services*, 49(March), pp. 43–53. doi: 10.1016/j.jretconser.2019.03.004.

Rauschnabel, P. A., Rossmann, A. and tom Dieck, M. C. (2017) 'An adoption framework for mobile augmented reality games: The case of Pokémon Go', *Computers in Human Behavior*, 76, pp. 276–286. doi: 10.1016/j.chb.2017.07.030.

Redbullgermany (2021) *Chasin Paul*. [AR Filter Game]. Instagram: Red Bull Germany. Available at: <https://www.instagram.com/ar/262554988708641/> (Accessed: 23 April 2021).

Rese, A., Baier, D., Geyer-Schulz, A. and Schreiber, S. (2017) 'How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions', *Technological Forecasting and Social Change*, 124, pp. 306–319. doi: 10.1016/j.techfore.2016.10.010.

Research and Markets (2021) *Extended Reality (XR) Market Report 2020 - Global Forecast to 2026 - ResearchAndMarkets.com*, *Business Wire*. Available at: <https://web.archive.org/web/20210504115057/https://www.businesswire.com/news/home/20210322005549/en/Extended-Reality-XR-Market-Report-2020---Global-Forecast-to-2026---ResearchAndMarkets.com> (Accessed: 4 May 2021).

Riar, M., Korbel, J. J., Xi, N., Zarnekow, R. and Hamari, J. (2021) 'The Use of Augmented Reality in Retail: A Review of Literature', in *Proceedings of the 54th Hawaii International Conference on System Sciences*, pp. 638–647. doi: 10.24251/hicss.2021.078.

Roettl, J., Waiguny, M. and Terlutter, R. (2016) 'The persuasive power of advergaming: A content analysis focusing on persuasive mechanisms in advergaming', *Australasian Marketing Journal*, 24(4), pp. 275–287. doi: 10.1016/j.ausmj.2016.10.001.

Rus-Arias, E., Palos-Sanchez, P. R. and Reyes-Menendez, A. (2021) 'The

Influence of Sociological Variables on Users' Feelings about Programmatic Advertising and the Use of Ad-Blockers', *Informatics*, 8(1). doi: 10.3390/informatics8010005.

Salen, K. and Zimmerman, E. (2004) *Rules of Play - Game Design Fundamentals*. Cambridge: The MIT Press.

Schivinski, B., Christodoulides, G. and Dabrowski, D. (2016) 'Measuring Consumers' Engagement With Brand-Related Social-Media Content: Development and Validation of a Scale That Identifies Levels of Social-Media Engagement with Brands', *Journal of Advertising Research*, 56(1), pp. 64–80. doi: 10.2501/JAR-2016-004.

Scholz, J. and Duffy, K. (2018) 'We ARe at home: How augmented reality reshapes mobile marketing and consumer-brand relationships', *Journal of Retailing and Consumer Services*, 44, pp. 11–23. doi: 10.1016/j.jretconser.2018.05.004.

Seidman, G. (2013) 'Self-presentation and belonging on Facebook: How personality influences social media use and motivations', *Personality and Individual Differences*, 54(3), pp. 402–407. doi: 10.1016/j.paid.2012.10.009.

Sherman, W. R. and Craig, A. B. (2018) *Understanding Virtual Reality : Interface, Application, and Design*. 2nd edn. Saint Louis: Elsevier Science & Technology.

Shiller, B., Waldfogel, J. and Ryan, J. (2018) 'The effect of ad blocking on website traffic and quality', *RAND Journal of Economics*, 49(1), pp. 43–63. doi: 10.1111/1756-2171.12218.

Sjödin, D., Parida, V., Jovanovic, M. and Visnjic, I. (2020) 'Value Creation and Value Capture Alignment in Business Model Innovation: A Process View on Outcome-Based Business Models', *Journal of Product Innovation Management*, 37(2), pp. 158–183. doi: 10.1111/jpim.12516.

Skiba, J., Petty, R. D. and Carlson, L. (2019) 'Beyond Deception: Potential Unfair Consumer Injury from Various Types of Covert Marketing', *The Journal of Consumer Affairs*, 53(4), pp. 1573–1601. doi: 10.1111/joca.12284.

Spark AR (no date) *Patch Editor Overview*, *SparkAR.Facebook.com*. Available

at:

<https://web.archive.org/web/20210429065356/https%3A%2F%2Fsparkar.facebook.com%2Far-studio%2Flearn%2Fpatch-editor> (Accessed: 29 April 2021).

Starbucks (2021) *Sip, Smile, Spring!* [AR Filter Game]. Instagram: Starbucks Coffee. Available at: <https://www.instagram.com/ar/815798252345016/> (Accessed: 23 April 2021).

Steuer, J. (1992) 'Defining virtual reality: Dimensions determining telepresence', *Journal of Communication*, 42(4), pp. 73–93. doi: j.1460-2466.1992.tb00812.x.

Stockinger, H. (2015) 'Consumers' Perception of Augmented Reality as an Emerging end User Technology: Social Media Monitoring Applied', *KI - Kunstliche Intelligenz*, 29, pp. 419–439. doi: 10.1007/s13218-015-0389-5.

Sundar, S. S., Xu, Q. and Dou, X. (2019) 'A MAIN Model Perspective', in Rodgers, S. and Thorson, E. (eds) *Advertising Theory*. 2nd edn. London: Taylor & Francis Group.

Sung, E. C. (2021) 'The effects of augmented reality mobile app advertising: Viral marketing via shared social experience', *Journal of Business Research*, 122(January), pp. 75–87. doi: 10.1016/j.jbusres.2020.08.034.

Sweeney, J. C. and Soutar, G. N. (2001) 'Consumer perceived value: The development of a multiple item scale', *Journal of Retailing*, 77(2), pp. 203–220.

Team Snapchat (2015) *A Whole New Way to See Yourself(ie)*, *Snapchat Blog*. Available at:

<http://web.archive.org/web/20150917171305/http://blog.snapchat.com/post/129151515055/a-whole-new-way-to-see-yourselfie> (Accessed: 3 April 2021).

Terlutter, R. and Capella, M. L. (2013) 'The gamification of advertising: Analysis and research directions of in-game advertising, advergaming, and advertising in social network games', *Journal of Advertising*, 42(2–3), pp. 95–112. doi: 10.1080/00913367.2013.774610.

Thomson, D. M. (2010) 'Marshmallow power and frooty treasures: Disciplining the child consumer through online cereal advergaming', *Critical Studies in Media Communication*, 27(5), pp. 438–454. doi: 10.1080/15295030903583648.

Thorson, E. and Rodgers, S. (2019) 'Advertising Theory in the Digital Age', in

Thorson, E. and Rodgers, S. (eds) *Advertising Theory*. 2nd edn. London: Taylor & Francis Group.

tom Dieck, M. C., Jung, T. H., Kim, W. G. and Moon, Y. (2017) 'Hotel guests' social media acceptance in luxury hotels', *International Journal of Contemporary Hospitality Management*, 29(1), pp. 530–550. doi: 10.1108/IJCHM-10-2015-0552.

tom Dieck, M. C., Jung, T. H. and Rauschnabel, P. A. (2018) 'Determining visitor engagement through augmented reality at science festivals: An experience economy perspective', *Computers in Human Behavior*, 82, pp. 44–53. doi: 10.1016/j.chb.2017.12.043.

Tsai, W. H. S., Tian, S. C., Chuan, C. H. and Li, C. (2020) 'Inspection or Play? A Study of How Augmented Reality Technology Can Be Utilized in Advertising', *Journal of Interactive Advertising*, 20(3), pp. 244–257. doi: 10.1080/15252019.2020.1738292.

Vashisht, D. and Sreejesh, S. (2015) 'Effects of brand placement strength, prior game playing experience and game involvement on brand recall in advergaming', *Journal of Indian Business Research*, 7(3), pp. 292–312. Available at: <http://dx.doi.org/10.1108/JIBR-11-2014-0082>.

Visnjic, I., Neely, A. and Jovanovic, M. (2018) 'The path to outcome delivery: Interplay of service market strategy and open business models', *Technovation*, 72–73, pp. 46–59. doi: 10.1016/j.technovation.2018.02.003.

Voss, K. E., Spangenberg, E. R. and Grohmann, B. (2003) 'Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude', *Journal of Marketing Research*, 40(3), pp. 310–320. doi: 10.1509/jmkr.40.3.310.19238.

Waiguny, M. K. J., Nelson, M. R. and Terlutter, R. (2014) 'The Relationship of Persuasion Knowledge, Identification of Commercial Intent and Persuasion Outcomes in Advergaming - the Role of Media Context and Presence', *Journal of Consumer Policy*, 37(2), pp. 257–277. doi: 10.1007/s10603-013-9227-z.

Wielki, J. and Grabara, J. (2018) 'The Impact of Ad-Blocking on the Sustainable Development of the Digital Advertising Ecosystem', *Sustainability (Switzerland)*, 10(11, 4039). doi: 10.3390/su10114039.

- Wieman, C. (2007) 'Why Not Try a Scientific Approach to Science Education?', *Change: The Magazine of Higher Learning*, 39(5), pp. 9–15. doi: 10.3200/chng.39.5.9-15.
- Wieman, C. E. (2014) 'The Similarities Between Research in Education and Research in the Hard Sciences', *Educational Researcher*, 43(1), pp. 12–14. doi: 10.3102/0013189X13520294.
- Wise, K., Bolls, P. D., Kim, H., Venkataraman, A. and Meyer, R. (2008) 'Enjoyment of Advergaming and Brand Attitudes', *Journal of Interactive Advertising*, 9(1), pp. 27–36. doi: 10.1080/15252019.2008.10722145.
- Xi, N. and Hamari, J. (2020) 'Does gamification affect brand engagement and equity? A study in online brand communities', *Journal of Business Research*, 109(January), pp. 449–460. doi: 10.1016/j.jbusres.2019.11.058.
- Yang, S., Carlson, J. R. and Chen, S. (2020) 'How augmented reality affects advertising effectiveness: The mediating effects of curiosity and attention toward the ad', *Journal of Retailing and Consumer Services*, 54. doi: 10.1016/j.jretconser.2019.102020.
- Yaoyuneyong, G., Foster, J., Johnson, E. and Johnson, D. (2016) 'Augmented Reality Marketing: Consumer Preferences and Attitudes Toward Hypermedia Print Ads', *Journal of Interactive Advertising*, 16(1), pp. 16–30. doi: 10.1080/15252019.2015.1125316.
- Yim, M. Y. C., Chu, S. C. and Sauer, P. L. (2017) 'Is Augmented Reality Technology an Effective Tool for E-commerce? An Interactivity and Vividness Perspective', *Journal of Interactive Marketing*, 39, pp. 89–103. doi: 10.1016/j.intmar.2017.04.001.
- Zeithaml, V. A. (1988) 'Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence', *Journal of Marketing*, 52(3), pp. 2–22. doi: 10.1177/002224298805200302.
- Zhang, H., Liang, X. and Qi, C. (2020) 'Investigating the impact of interpersonal closeness and social status on electronic word-of-mouth effectiveness', *Journal of Business Research*. doi: 10.1016/j.jbusres.2020.01.020.
- Zhechev, V. S. (2015) 'Stealth Marketing Strategy - Origins, Manifestations and

Practical Application', *SSRN Electronic Journal*. doi: 10.2139/ssrn.2618365.

Zhou, F., Dun, H. B. L. and Billingham, M. (2008) 'Trends in augmented reality tracking, interaction and display: A review of ten years of ISMAR', in *Proceedings of the 7th IEEE/ACM International Symposium on Mixed and Augmented Reality (ISMAR '08)*. USA: IEE Computer Society, pp. 193–202. doi: 10.1109/ISMAR.2008.4637362.