Content Analysis of Augmented Reality in Viral Video Advertising

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Abstract

In the digital era, networking hardware is mature and stable, and various new media have been derived, driving the trend of AR advertising. The advertising industry gradually regards AR as an important communication tool for advertisers to launch marketing campaigns (Craig, 2018). The advertising campaigns combine new AR technology that allows customers to participate in the offline experience directly. In addition, the advertiser can upload videos of AR activities process on social media (such as YouTube). They use secondary information dissemination, and viral marketing to captivate the attention of consumers. However, there are few relevant studies on the advertising design of AR, and this issue is worth exploring. The purpose of this study is to explore the AR video ads for brand marketing. Through content analysis, we will explore the performance of AR video ads with a high number of views, their content information and creative strategies. To understand how the brand affects the viewer's potential psychological cognition, and then generate positive communication, form viral spread, and gain word of mouth and free publicity for the brand. The result can be a reference for the design of AR video ads in the industry and academia.

Keywords: Creative Advertising, Marketing Technology, Viral Advertising, Advertising Design

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Introduction

Pokémon Go, a mobile game developed by Japanese video game company Nintendo, became an instant success upon its release in 2016 (Chan, 2017). The success of the game contributed greatly to the rapid advancement of extended reality, which includes augmented reality (AR) and virtual reality (VR; Chen, 2019). According to Deyan (2021), AR is typically used by young people (aged 16–34 years) and has a market value of US$3.5 billion. The number of AR users is expected to reach 1.73 billion by 2024; 70% of consumers recognize the benefits brought about by AR applications, and 67% of media planners and buyers have reported an intention to include AR advertising in digital marketing activities to encourage consumer participation. A survey indicated that 90% of American enterprises that reported a midyear revenue between US$100 million and 1 billion have been using AR (Huberman, 2017). The COVID-19 pandemic of 2020 forced many industries to introduce preventive measures, such as remote working, contactless service, contactless conference rooms, and virtual social events, and these measures accelerated the development of AR and VR. A news agency reported that this increased expenditures on AR and VR solutions in 2020 to US$10.67 billion, a 35.3% increase compared with 2019, and predicted that the 2020–2024 compound annual growth of such expenditures would reach 76.9% (MoneyDJ, 2020). AR is increasingly recognized as a new means for marketing manipulation in the advertising industry (Craig, 2018). For this reason, the influence of AR on the advertising industry warrants further investigation.

Baeck et al. (2018) examined how sportswear brands affect consumer purchase intention through AR try-on technology, and they discovered that when consumers sharing their experiences with AR on social media results in a word-of-mouth advertising effect (Heller et al., 2019). New and innovative technologies provide brands with new ideas for marketing strategies. Brands and awareness campaigns have learned to leverage the interdisciplinary and transmedia online and offline experiences. Most studies on AR applications in marketing have focused on how offline AR technologies and interactive experiences affect consumers' attitudes toward advertisements; how brands use video AR advertisements to subconsciously affect viewers' perceptions of and identification with them; and viral advertising, and free word-of-mouth has been largely neglected. Video advertisements are a category of digital advertising that has witnessed the greatest growth in this field. According to InsightXplorer, a market research agency, Taiwanese Internet users have the highest exposure to video advertisements in Asia (InsightXplorer, 2016). How AR advertising affects viewers and create a ripple effect through secondary dissemination is worthy of in-depth investigation.

A video advertisement can draw viewers' attention from other video advertisements if it clearly conveys its brand philosophy through sound, timing, movement, and image and if its message appeals to the audience. The content of an advertisement and how it is expressed must correspond to each other, and the value of the message of an advertisement determines whether the advertisement can draw consumers' attention. As a purely visual form of advertising, AR advertising cannot offer immersive experiences. For this reason, this study investigated how AR advertising maintains viewer attention. In addition, this study investigated how such advertisements affect viewers' attitudes and thereby facilitate positive communication with viewers that generates a ripple effect for brands. Content analysis was conducted to compare AR advertising manipulation strategies in terms of number of views, product type, and region of origin. The results of this study may provide reference for brands seeking to engage in marketing manipulation through AR advertising.

Literature review

Considerations for creative expression in AR technology

Papagiannis (2017) suggested that the design of an AR application must account for the fact that the use of AR requires focus; a successful AR design does not isolate the user from their surroundings or other individuals but creates a human-centric experience in which the technology assumes a secondary position, enabling users to focus on the experience. AR requires attention and time and is integrated into physical world, which can enable users to develop strong impressions. Scholz and Smith (2016) identified four routes through which individuals can engage with AR: (1) active print and packaging, whereby users activate AR content in magazines, signs, product packaging, and printed materials; (2) a bogus window, whereby a digital screen disguised as a normal glass window is used to augment the objects visible to users, who cannot see themselves in the augmentation; (3) geo-layers, in which users activate AR content based on their geographic location by using a global positioning system; and (4) magic mirrors, whereby a digital screen disguised as a normal mirror (or not) is used in a manner opposite the bogus window, enabling users to see themselves as part of the augmentation.

Feng and Mueller (2019) identified a fifth route, projection mapping, which involves projecting images or video content onto a building, billboard, or any surface. The user experiences the AR content projected in front of them without touching or operating a device. Rauschnabel (2018) observed that new technologies such as AR, VR, and artificial intelligence have fundamentally changed the marketing and advertising industries. The widespread use of smartphones and tablets has made AR almost omnipresent in daily life. Through graphic visualization and object detection, AR technologies enhance aspects of the physical world (Flavián, et al., 2019; Georgiou & Kyza, 2017). Thus, AR technologies augment reality rather than cause detachment from it (Craig, 2013).

Viral advertising and advertising strategies

Lance and Golan (2006) identified viral advertising as a form of viral marketing and defined it as a form of point-to-point communication free of charge, made by marketers who use provocative content to affect the audience on the Internet, and shared voluntarily among friends. Whether the audience shares video advertisements depends on whether they find them worthy of sharing. An advertising strategy is a method that marketers employ to achieve a goal; it is closely related to the who, how, where, and what. Moriarty and Robbs (1999) noted that an advertising strategy is the logic that underlies the communication between a brand (or product) and its consumers, which is achieved using nonrational artistic license and by striking a balance between divergent thinking and convergent thinking. Creativity is often discussed in relation to advertising strategies. However, the distinction between advertisement creativity and strategy remains unclear. The purpose of an advertising strategy is to creatively fulfill a marketing objective. Such as strategy can be developed by thoroughly studying the product, market, consumers, and competitors; creativity is then employed on the basis of the implemented strategy. Therefore, advertisement creativity and advertising strategies complement each other and are inseparable.

Most researchers have indicated that advertising strategies consist of two components. The first is the creative strategy, which primarily involve determining the content, themes, and positioning of an advertisement. The other component is the creative tactic, which is also

known as "creative execution." It relates to how the content of an advertisement is expressed through copywriting, graphics, format, color scheme, and layout (Hsiao, Chang, & Cho, 2020). Aaker and Donald (1982) indicated that creative strategies can be related to information and transformation. Laskey, Day, and Crask (1989) demonstrated that creative strategies should be rational, cognitive, utilitarian, and functional to convey the benefits, characteristics, and purpose of a product. Informational creative strategies affect consumers' perceptions of brands; advertisements that employ this type of strategy may directly manipulate consumers' attitudes and purchase intention (Lee et al., 2016). Transformational creative strategies, which involve the use of sensationalism to establish brand image, are also known as emotional, feeling, or value-expressive creative strategies.

Advertising strategies are used to present products and services, and their effectiveness is evaluated using indices such as consumer satisfaction (Haida & Rahim, 2015). Gao and Koufaris (2006) noted that consumers subjectively evaluate the value and utility of an advertised product or brand on the basis of the informativeness and entertainment value of the advertisement. Informativeness depends on the amount of information related to the product and its benefits; high informativeness can help convey brands' propositions and image. Entertainment value depends on how surprising, exciting, and amusing an advertisement is (Ducoffe, 1996). Advertisements can attract consumers' attention by being entertaining. Because entertainment can result in pleasure, it is an effective approach to ensuring brand favorability (Mitchell & Olson, 1981). Entertainment has also positively affects advertisement effectiveness and consumer attitudes (Papacharissi & Rubin, 2000).

On this basis, this study investigated the following topics:
RQ1: Differences in viral AR advertising attributable to number of views.
RQ2: Differences in viral AR advertising attributable to product type.
RQ3: Differences in viral AR advertising attributable to region of origin.

Methods

Sample

YouTube, the largest multimedia search engine and sharing platform worldwide, allows users to upload, view, and rate videos. This makes it an ideal platform to study the effectiveness of AR advertising. The following phrases were used to search for videos about AR advertising on YouTube: "augmented reality advertising," "augmented reality marketing," "augmented reality campaign," "augmented reality outdoor advertising," "augmented reality live event," and "projection mapping." Because this study focused on AR-based viral advertising, tutorials on AR advertising were not included. A total of 85 videos were collected, 73 of which were retained for analysis after irrelevant videos and videos with poor video quality were excluded.

Coding scheme

This study examines the content message and creative strategies of viral AR video advertisements. The categories analyzed include: views, video length, product category, region, creative strategy, and creative execution.

1. Views

   As indicated by Feed (2008), videos that accumulate more than 1 million views are considered successful, and those with more than 100,000, 250,000, or 500,000 are considered worth sharing. The videos were distinguished into five categories based on views: (1) >1,000,001, (2) 1,000,000–500,001, (3) 500,000–250,001, (4) 250,000–100,001, and (5) <100,000.

2. Video length

   This study divides video length into four types: (1) short video: the video duration is between 0-30 seconds, (2) TV commercial: the video duration is between 31-60 seconds, (3) microfilm: the video duration is between 61-300 seconds, (4) feature film: the video duration is above 301 seconds (Zihai, 2015).

3. Product category

   Scholz & Smith (2016) argue that AR can provide an immersive brand experience and offer consumers a novel way of learning about brands. Therefore, examining the product types in AR ads is crucial. This study refers to the categories of products in the studies of Golan & Zaidner (2008) and Feng & Mueller (2019), which includes 19 types: (1) automobiles: four-wheeled car brands, (2) food/beverage: edible food and non-alcoholic water, juice, and beverages, (3) travel/leisure: brands related to airlines, travel, vacation, and leisure, (4) electronics: brands related to 3C electronics, (5) banking/credit card/insurance: brands related to finance, banking, or insurance, (6) apparel and accessories: fashionable clothing, accessories, and cosmetics, (7) media and entertainment: including movies, TV, games, amusement parks, etc., (8) home Goods: kitchen supplies, cleaning supplies, etc., (9) pharmaceuticals: brands related to medicine, (10) sporting goods: sports-related brands, (11) cosmetics/Bath Products, (12) books/magazines, (13) video/music, (14) furniture, (15) real Estate, (16) software, (17) alcohol: brands of alcoholic beverages, (18) advocacy Issues: non-profit organizations advocating for a particular issue such as conservation, ecology, environment, gender, religion, human rights, education, etc., (19) services: advertising agencies, technology companies, and other advertising design service industries.

4. Region

   In this study, following the research of Feng & Mueller (2019), the countries of advertisers who uploaded the video ads were divided into four regions: (1) Europe, (2) Asia, and (3) North America, to understand the regions where AR video ads were distributed.

5. Creative strategies

   The creative strategies examined in this study relate to AR content and AR trigger forms. With reference to Ducoffe (1996), AR content was examined in terms of (1) informativeness and (2) entertainment value. As described by Feng and Mueller (2019), the trigger forms were (1) print /packaging, (2) bogus windows, (3) geo-layers, (4) magic mirrors, (5) projection mapping, and (6) mixed methods.

6. Creative execution

   Creative execution was evaluated in terms of user–AR interaction, emotion, and copywriting. On the basis of Feng and Mueller (2019), user–AR interactions were categorized as (1) perceptive, where users passively perceive the AR experience and are not part of the augmentation; (2) manipulative, where users can change the AR

experience but are not part of the augmentation; (3) integrative, were users are part of the augmentation but cannot manipulate it; and (4) interactive, where users are part of the augmentation and interact with it. On the basis of Dafonte-Gómez et al. (2020), emotions were categorized as (1) surprise, including amazement and astonishment; (2) joy, including delight and happiness; (3) sadness, including upset, sadness, and depression; (4) anger, including frustration and indignance; (5) fear, including worry and nervousness; and (6) disgust, including repulsiveness and dislike. In terms of copywriting, advertisements were categorized as either (1) narrated and captioned; (2) narrated only; (3) narrated with background music; (4) having background music only; or (5)not having copywriting.

Coding procedures

In communication design, not all phenomena of interest can be analyzed directly. Content analysis is an objective method used to quantitatively and comprehensively examine itemized messages (Cheng, 2015). This study performed content analysis to examine messages and to determine factors that make AR advertising viral (Wimmer & Dominick, 2007).

Coding was performed by three coders with a background in design and more than 5 years of experience. To ensure consistency, the coding procedure proposed by Kolbe and Burnett (1991) was followed. The coders were first trained by the researchers, who explained the guidelines and operational definitions for the coding and categorization process. Subsequently, they were asked to code 10 AR videos. When a disagreement occurred, the coders explained their thoughts to each other and reached a consensus after deliberation. This training process continued until all three coders were familiar with the operational definitions for each category and felt satisfied with the performance of their fellow coders. The benchmark for the reliability coefficient was 0.85 (Wang, 1991); a high reliability coefficient indicates high cognitive consistency between coders. The reliability coefficient was 0.91 between Coder A and Coder B, 0.92 between Coder A and Coder C, and 0.96 between Coder B and Coder C. This yielded a consistency of 0.94, which is greater than the 0.85 benchmark, suggesting reliability.

Results

The majority of the videos had fewer than 100,000 views (67.12%). The group with the second largest number of videos was the worth sharing category (1,000,000–100,001 views) (24.66%); only five videos were in the successful category (>1,000,001 views) (8.22%). The result of a cross analysis, most advertisements with fewer than 100,000 used the active print/packaging strategy (36.99%). Most of the worth sharing advertisements used the bogus window strategy (8.22%), with many others using the projection mapping strategy (6.84%); the difference in number of videos between these categories was extremely small, with both strategies being characterized by contactless experience. The successful (viral) videos were mainly triggered through bogus windows (5.48%).

The advertisements with fewer than 100,000 views were mainly informative (21.92%) and involved magazines, outdoor signs, product packaging, catalogues, and other printed materials. Advertisements of this type are mostly promotions for brands and are less likely to be shared because by audiences. The majority of videos in the worth sharing (17.81%) and successful categories (6.84%) were entertainment based and attempted to instill joy in the viewer (Dafonte-Gomez, 2014), which facilitates viral circulation.

In modern society, the length of an advertisement determines audience engagement. Therefore, advertisements must be interesting and creative to stand out. Most AR advertisements were microfilm (61–300 sec) (68.50%), followed by television commercials (31–60 sec) (19.17%) and short videos (<30 sec) (12.33%); none were longer than 301 sec. feature film are more effective in promoting brands by conveying their philosophies (Kang, 2011). However, extremely long videos can cause the audience to lose patience.

The cross analysis revealed that most videos with fewer than 100,000 views (31.51%) were manipulative and that most worth sharing videos were manipulative (9.59%) or perceptive (8.22%) (small difference). Most of the successful videos were perceptive (4.12%). The majority of the videos across all categories had only background music. Most videos with fewer than 100,000 views elicited joy (36.99%), whereas most worth sharing (16.44%) and successful videos (6.84%) elicited surprise.

Of the 19 product categories investigated, six (electronics, home appliances, drugs, videos and music, real estate, and software) did not have AR advertisements. The type of product with the most AR advertisements was services (advertising agencies and high-tech companies) (36.99%), followed by food and beverages (23.28%), tourism and recreation (12.33%), apparel and accessories (6.84%), publications (5.48%), and media and entertainment (4.12%). The cross analysis revealed that among videos for services, the most used strategy was bogus windows (12.33%), followed by active print/packaging (9.59%), projection mapping (6.84%), mixed methods (4.12%), geo-layers (2.74%), and magic mirrors (1.37%), in that order. Most videos for food and beverages used active print/packaging (16.44%). Most of the videos for services were entertainment (20.55%), with some being informative (13.70%). Similarly, most videos for food and beverages (20.55%) and tourism and recreation (8.22%) were entertainment.

The cross analysis also revealed that among the videos for services, the most common pattern was perceptive (16.44%), followed by manipulative (15.07%) and integrative (5.48%). For the food and beverages and tourism and recreation videos, the most used pattern was manipulative, followed by perceptive. Videos for apparel and accessories predominantly used the interactive pattern, enabling users to become a part of the augmentation. All videos for services (23.29%), food and beverages (16.44%), tourism and recreation (5.48%), media and entertainment (4.12%), and publications (4.12%) had only background music. Most of the videos elicited surprise (53.42%), with some eliciting joy (46.58%), and none elicited negative emotions. Videos for services elicited either joy (19.18%) or surprise (17.81%), but most videos for automobiles, food and beverages, tourism and recreation, media and entertainment, and publications elicited surprise rather than joy.

The majority of the advertisers that made the videos were located in North America (45.21%), with some in Asia (34.25%) and Europe (20.54%). The cross analysis revealed that most European advertisers used projection mapping (9.59%), whereas most North American advertisers used bogus windows (16.44%), with some using active print/packaging (13.70%). European (19.18%) and North American (32.88%) videos were mostly entertainment, whereas Asia videos were mostly informative (16.44%), followed by entertainment (13.70%).

The cross analysis revealed that the majority of Asian (19.18%) and North American (17.81%) videos used the manipulative pattern, whereas the European videos mostly used the perceptive pattern. All videos across regions only had background music. The European

(16.44%) and North American (23.29%) videos tended to elicit surprise rather than joy, whereas the Asian (20.55%) videos tended toward joy.

Conclusion

AR is a new tool for brand marketing. However, offline AR experiences are only effective for a short period. To increase consumers' exposure to brands, many advertisers have begun to use video records of consumer–AR interactions and upload them to online platforms for secondary dissemination. This study analyzed 73 AR advertisements and determined that AR manipulation models differed by number of views, product type, and region of origin. According to the results, various challenges must be overcome for AR videos to be considered worth sharing, and few videos accumulate more than 1,000,000 views and are deemed successful. Creative strategies that embed emotions in the video and the tasteful use of AR's virtual features to augment physical objects can create surprising and positive experiences for viewers. AR content should be more entertaining than informative to draw consumers' attention and increase the likelihood of it being shared.

AR has been widely applied to brand advertising. In this study, the AR videos with fewer than 100,000 views mostly used active print and packaging. In Asia, this method is mostly employed in food and beverage brands; consumers scan an image offline to activate a brand's AR experience and learn about products. However, when this type of AR is used in advertising, the likelihood of it being viewed and shared online is low, possibly because viewers may quickly recognize it as an advertisement and thus doubt its entertainment value. The AR videos with more than 100,000 (worth sharing) and 1,000,000 (successful) views were mostly from Europe and North America, where advertising agencies and companies specializing in AR services often upload their work to online platforms to promote their brands. These videos mostly used bogus windows or projection mapping, eliminating the need for a handheld device. In addition, because projection mapping involves images displayed on a digital screen disguised as a normal glass window or projected onto the façade of a building, a large number of individuals can view the content. For this reason, projection mapping, especially content that elicits joy and surprise, is an efficient advertising method for brands.

Methods of creative execution for user–AR interactions differ by product type and region (Feng & Mueller, 2019). All four patterns of user–AR interactions were used in the videos in this study. However, brands should use manipulative, integrative, and interactive patterns to enhance users' experience. For online AR advertising, however, the perceptive pattern should be used because it enables storytelling, which often results in sharing and even viral circulation. AR involves overlapping virtual and physical objects to augment users' imagination and vision. Successful AR presentation should also elicit surprising and joyful feelings, which increase the likelihood of viral circulation (Dafonte-Gómez et al., 2020; Eckler & Bolls, 2011).

AR technology for marketing and advertising is still in its infancy. With the maturation of fifth- and sixth-generation technology, the marketing and advertising industries have high expectations for AR technology. This study performed content analysis to examine AR advertising strategies in videos with different numbers of views, products, and regions of origin. Future researchers are recommended to examine the advertising effect of AR video content or the communication effectiveness of experiential scenarios with different triggering methods, thereby supplementing the limitations of this study.

Acknowledgements

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