The Influence of Social TV Multitasking Behavior
on the Effectiveness of Cross-Media Advertising

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Social TV, a second screen activity comprising a community of users engaged in a primary screen activity, differs from watching TV alone (i.e., individual TV). A 2 (TV viewing condition: individual vs. social TV) × 2 (advertisement on the second screen: video vs. picture) factors between-subjects experiment design was conducted to investigate whether interactions occurring in the two TV viewing conditions affect advertising effectiveness. The results confirmed two-way interactions: (1) In the social TV viewing condition, video advertisements on the second screen led to better advertising effectiveness; (2) in the individual TV viewing condition, picture advertisements on the second screen led to better advertising effectiveness; and (3) gratifications from media use partially mediated viewing conditions and advertising effectiveness.

Keywords: social TV, multiscreen behavior, media multitasking, cross-media advertising, product placement

With the rapid growth of social media platforms and mobile devices, young media users increasingly regard the online social environment as their main avenue of social activities. Simultaneously, new

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communication technologies have transformed the definition and experience of television viewing. Mobile devices are among the major changes in this new era, and have gradually become a part of TV viewing, enriching the traditional TV viewing experience. In 2019, among Americans who use a smartphone as a second screen while watching TV, 71% and 68% use it for social media and information search about the TV content, respectively (Statista, 2020).

Multiscreening is a new multitasking media activity whereby users view multiple screens concurrently. According to the Interactive Advertising Bureau (2015), 24% of people interact with TV content or advertisements on their secondary devices while multiscreening. Consuming media content from the first screen and obtaining additional information from the second screen is characteristic of TV viewing in Taiwan, whereby 81% of people use smartphones to access online content while watching TV (Statista, 2016). This is social TV, a multitasking behavior among users using a second device to engage in social, computer-mediated communication while watching TV (Ducheneaut, Moore, Oehlberg, Thornton, & Nickell, 2008).

The social application of social TV behavior can satisfy the needs for coviewing among those who watch TV alone. Enjoyment from second screen activity amplifies the TV watching experience (Cohen & Lancaster, 2014). Geerts, Garcia, and Bulterman (2008) found that news, dramas, reality shows, and sports are program genres that easily trigger social discussions, leading to simultaneous chatting. Discussions in online forums or social media reflect the social dimension of social TV. Therefore, more cross-media instant dialogs and interactions among users turn the otherwise unconnected TV watching activity into a highly social, online activity (Andrejevic & Lee, 2013).

Social TV creates online groups whose members discuss products on TV, advocating the use of product placements (Kozak & Barinka, 2016). These are less intrusive to the viewing experience as companies include products without annoyances from commercial breaks (Ropha & Adriena, 2018). Product placements are generally effective (Srivastava, 2016), given the increasing growth in global product placement marketing (Statista, 2015). A study by PQ Media (2020) shows that global product placements amounted to $20.57 billion in 2019, reflecting their perceived marketing value.

Prior research has shown that audiences do not mind TV product placements (Gupta & Gould, 1997; Nebenzahl & Secunda, 1993). Davtyan and Cunningham (2017) demonstrated that audiences have better attitudes toward brands placed in shows than those placed during traditional commercial breaks. Product placements in sitcoms can leverage brand preferences and trigger purchase intentions through humor, generating more effective advertising. Davtyan and Cunningham suggest that marketing professionals need more specific product placement strategies and measurement mechanisms to better understand new challenges from social TV.

Taiwan's population is 23.66 million, and about 78% is urbanized. Its Internet penetration is 88%, which is 35% higher than the global penetration rate (Kemp, 2018). Moreover, 80% use social media, 79% are mobile users, and 76% are active mobile social media users. These data indicate nearly twice the global social media penetration: 11% and 37% higher in mobile device and mobile social media use, respectively (Kemp, 2018). Therefore, Taiwan has a well-developed environment for users to adopt mobile devices during TV watching, providing opportunities for digital advertising.

Despite growing attention on social TV, studies on the effectiveness of cross-media product placements on TV are lacking. To address this gap, this study serves two purposes: (1) It attempts to examine the consequential factors behind cross-media product placement advertisements in social TV viewing, and (2) it aims to provide a better understanding of the underlying mechanisms that can explain the mediating role of gratification and flow experience between TV viewing and advertising effectiveness. The study builds upon the limited capacity model (LCM), uses and gratifications (U&G), flow theory, and the literature on social TV and related concepts, including cross-media advertising and product placement, to investigate the mechanism behind social TV usage, which affects the effectiveness of cross-media product placements. Advertising effectiveness is measured by awareness (brand recall) and persuasion (brand attitude, ad attitude, and purchase intentions); we compared this effectiveness across social TV and individual viewing contexts. The findings contribute to a theoretical understanding of the effectiveness of social TV advertising and support the development of advertising strategies.

Conceptual Framework and Hypotheses

Social TV

Social TV is a fast-developing interactive behavior, involving users' social behavior to discuss television program-related content and interact with online groups on their mobile devices through text and audio messages. Users can interact with others about TV content directly through the TV monitor or a mobile device (Shin, 2016). This behavior constitutes an integration of TV with new communication technologies, making watching TV a mutual, interactive, and involved media experience (Cohen & Lancaster, 2014).

This social characteristic helps the audience identify related content, and users tend to interact with others in the group to enhance the TV-watching experience (Shin, 2016). Lanceley (2010) argues that these social elements have become part of media content shown on the second screen. Social TV provides computer-mediated communication for people to connect innovatively. Resultant discussions on social media increase audience involvement and maintain the buzz in online communities (Gross, Fetter, & Paul-Stueve, 2008).

Media multitasking behavior is also important in social TV, reflecting the condition in which users consume two or more media contents simultaneously (cf. Garaus, Wagner, & Bäck, 2017; Pilotta, Schultz, Drenik, & Rist, 2004). Social TV is a multitasking behavior whereby Internet use and TV watching occur simultaneously. Recently, several researchers (Bellman, Rossiter, Schweda, & Varan, 2012; Varan et al., 2013) explored the effects of media multitasking on advertising. Theories, such as the LCM, are used to explain the cognitive mechanisms behind attention distribution. For example, Voorveld (2011) suggests that media multitasking distracts users from the primary screen. Therefore, it is likely to reduce ad recall and ad recognition compared with watching advertisements with full attention. Media multitasking conditions are effective in increasing the chance of users' instant online searching and e-commerce shopping while watching TV (Joo, Wilbur, Cowgill, & Zhu, 2013) and can be seen as an extension of the TV experience (Garaus et al., 2017). Understanding social TV can thus support marketing and advertising efforts.

Cross-Media Advertising

Cross-media advertising is an integrated marketing communications strategy whereby advertisers choose two or more platforms to promote a unified advertising message in one campaign, enabling a brand or a product to be exposed on different media channels to reach a larger target audience, influencing consumers more effectively (Vandeberg, Murre, Voorveld, & Smit, 2015). Cross-media advertising stresses the "combination of advertising" on different media channels (J. Kim & Yu, 2013, p. 263). Given differences between traditional and new media, cross-media advertising adapts to different levels of control (Jessen & Graakjær, 2013) by integrating advertising on traditional media and new media, where the latter offers a sense of agency for users to acquire content on their mobile devices (J. Kim & Yu, 2013). Users perceive a higher sense of control while consuming media content and provide more positive responses on new media (McMillan & Hwang, 2002). Moreover, Ko, Cho, and Roberts (2005) found that interactivity in new media is the key to making cross-media advertising more effective than traditional advertising. New media support faster information receipt and exchanges, making cross-media advertising strategies more effective (Voorveld, 2011).

Cross-Media Product Placement Advertisement in Social TV

Multimedia advertisements are more vivid than print, like video versus text (Steuer, 1995). People process a video-format advertisement with visual and auditory senses. Because multimedia advertisements are more enjoyable, researchers believe that presenting information in highly vivid formats is interesting, inviting, and emotionally arousing (Nisbett & Ross, 1980). In a multitasking media environment, there is a higher chance for users to watch multimedia advertisements on a second screen. Multimedia content is better poised to compete for users' attention because a video-format advertisement interacts with users' visual and auditory senses and draws their attention more easily (Yang & Guo, 2015). Belch and Belch (2004) maintain that multimedia content conveys brand image, develops emotional appeal and entertainment better, and makes boring products look interesting.

Per LCM, every individual has limited attention span to decide where and how much cognitive resources to allocate. Situations demanding more recognition have a higher chance of persuasion. Due to the richer cues in audio-visual than textual content, there should be greater cognitive elaboration, leading to a greater extent of opinion change (Kisielius & Sternthal, 1986) and better persuasive effect in advertising (Kelley & Turley, 2001). Furthermore, media content with high vividness triggers attention and heightened cognitive resource allocation results in better brand memory (Nisbett & Ross, 1980).

To advance our understanding of cross-media product placements in social TV, we used LCM as our research framework to examine how different modalities of advertisements on the second screen perform with different TV viewing conditions. Viewers' perceptions toward advertisements on the second screen in different TV viewing conditions can result in different advertising effects. In the social TV condition, users interacted with other users via a second screen in a high-social media multitasking environment. Multimedia advertisements can effectively compete for users' attention and demand that users allocate more cognitive resources for information processing, leading to more effective advertising. However, viewers in an individual viewing condition devote their full attention to media content on the first screen. Even if they

use a second screen, it is considered a nonsocial media multitasking environment without distracting stimuli like social media and instant messaging. Therefore, picture advertisements with low richness for viewers who are more deeply immersed in individual viewing may actually generate better advertising effectiveness. This suggests an interaction effect between TV viewing conditions and advertisement modalities. Thus, we advanced the following hypotheses. In the Method section, we explain the operationalization of the advertising effectiveness construct.

H1:   In a social TV viewing condition, video advertisements will generate better advertising effectiveness than picture advertisements.

H2:   In an individual viewing condition, picture advertisements will generate better advertising effectiveness than video advertisements.

Potential Mediators Between Viewing Condition and Advertising Effectiveness Gratifications From Cross-Media Consumption

Although cross-media advertising effectiveness may be different across different TV viewing conditions, active and selective consumers can influence advertising effectiveness (O'Donohoe, 1994). Among mobile media, advertising effectiveness is enhanced by consistent individual needs and gratification-seeking behavior (Rosenkrans & Myers, 2012), and users of social media are more receptive to advertising that is consistent with their motivations (Anwar Mir, 2017).

These findings are explained by U&G theory, positing that media users have needs to be fulfilled and are actively engaged while consuming media content (Katz, Blumler, & Gurevitch, 1974). New communication technologies have brought multiple media choices to satisfy audiences' needs for enjoyment, entertainment, and gratification (Ruggiero, 2000). Researchers have examined motivations of new media usage with the U&G approach: Korgaonkar and Wolin (1999) argue that individuals have more to fulfill than just satisfying the need for information retrieval; Papacharissi and Rubin (2000) identify interpersonal interaction, pastime, information search, convenience, and entertainment as motivations of Internet usage; Ko and colleagues (2005) classify motivations into information, convenience, entertainment, and social interaction dimensions. These show a wide variety of motivations, suggesting that new media users are highly active. Mobile communication devices are more suitable for interactive purposes than personal desktops and can provide different levels of gratifications (Sundar & Limperos, 2013), thus fulfilling the needs of active users. Sundar's (2008) theoretical model posits that the affordance in digital media has a salient influence on media consumption experiences. Internet usage on the second screen is basically Internet surfing behavior and media consumption. Therefore, enjoyment, entertainment, and gratifications gained in a cross-media consumption experience are similar to the gratifications discussed in the literature, warranting the inclusion of gratification in this study.

However, the implications of gratification are not straightforward. Cross-media consumption is commonly adopted by consumers nowadays. According to comScore (2012), 56% of Internet users use mobile devices simultaneously with desktops for Internet activities. Some studies (K. Kim, Cheong, & Kim, 2016; Rubin, 1983) have shown how the U&G approach explains the motivation and gratifications

individuals experience from different media. Although individuals may access the same content on different media, every channel offers a different "content experience," leading to different types and levels of gratification, especially in a cross-media environment. Rubin (2009) suggests that individuals gain gratification from media content and the process of consuming media. A mobile device plays a consequential role of affecting the ways audiences adopt new communication technologies, processes of consuming media, and media-consuming experiences (Sundar & Limperos, 2013). Interestingly, K. Kim and associates (2016) compared users' gratification in both personal computer and mobile device usage, and found that socialization, entertainment, and diversion were dimensions that resulted in the strongest competitions in use and gratification.

To further our understanding of gratifications in TV viewing and cross-media advertising, we advance the following hypothesis. We explain the operationalization of the gratifications construct in the Method section.

H3:   *Gratifications will mediate cross-media advertising effectiveness across different TV viewing conditions.*

Flow Experiences

Similar to user gratifications, TV advertising is more effective when users are engaged (J. Kim, Ahn, Kwon, & Reid, 2017). In online advertising, engagement via interactivity, vividness, entertainment, and self-referencing results in more positive product attitudes (Ching, Tong, Chen, & Chen, 2013). This engagement can be explained using the flow concept, which depicts an immersive optimal experience. Flow experience is perceived as most immersive when the environment contains a certain level of opportunities for challenges that the individual is able to cope with. Here, the individual is not only enjoying the challenge, but is also stretching capabilities with the likelihood of absorbing new knowledge, honing new skills, and escalating one's self-esteem and complexity (Csikszentmihalyi & LeFevre, 1989). Descriptions of individuals experiencing flow include "intense and focused concentration on what one is doing in the present moment," "merging of action and awareness," and "loss of reflective self-consciousness" (Nakamura, Csikszentmihalyi, Snyder, & Lopez, 2002, p. 90).

These experiences have been extensively applied to studies across disciplines spanning a wide spectrum of human activities to investigate the factors and consequences of immersive experiences (Jin, 2011). Increasingly, scholars apply flow theory to study users' media consumption experiences and explain the effect of the flow experience on consumers' enjoyment, entertainment, and gratification, as well as how gratifications from the flow experience affect advertising effectiveness in cross-media contexts (Csikszentmihalyi & LeFevre, 1989; Sherry, 2004). Sherry (2004) argues that the gratifications from using media for diversion and escapism are indications of intense focus and loss of self-consciousness. Jin (2011) argues that when playing video games, users gain flow experiences from the challenges and actionable responses. These suggest that flow experiences can also influence advertising effectiveness. To examine the relationship between TV viewing conditions and flow experiences, as well as the latter's role in a cross-media environment, we advanced the following hypothesis. In the next section, we explain the operationalization of the flow experience construct.

H4:   *Flow experiences will mediate the television viewing condition on cross-media advertising effectiveness.*

Method

Experimental Design

We selected an experimental methodology to create advertising stimuli in a controlled setting and record corresponding participant responses. This level of control is impossible in other methods. We designed a laboratory experiment using a 2 × 2 between-subjects design (see Figure 1). Viewing condition was operationalized in two levels: individual TV viewing versus social TV viewing whereby a pair of viewers was asked to watch the same TV program simultaneously in different rooms and to message each other through an instant messaging app on mobile devices we provided.
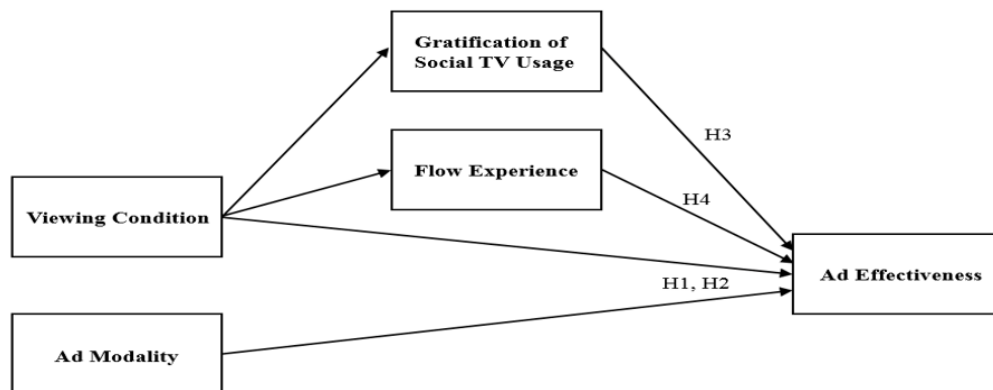
Figure 1. Proposed conceptual model.

For audiences in the social TV condition, advertisements showed the product and its QR code in the upper right corner of the screen. Some advertising formats, such as pop-up advertisements, trigger negative viewer feelings, which cause viewers to avoid watching them (Rejón-Guardia & Martínez-López, 2014). Advertisements that give viewers less control make them feel a higher degree of intrusiveness, irritation, and lower ad recognition (McCoy, Everard, Polak, & Galletta, 2008). Therefore, in this study, we used small banner advertisements on the screen during the social TV condition.

The second factor, modality of advertisement, was operationalized in two levels: video versus picture. Compared with pictures, video advertisements lead to more clicks on Facebook (Dopson, 2019). The vividness effects may further explain how video attracts the attention of audiences more easily than pictures, and advertisements with audio/video generate better attitudes toward websites, a greater likelihood of purchase, and better recall of product information than advertisements with text/pictures (Appiah, 2006). Similarly, rich media with video induce higher brand awareness, brand favorability, and purchase intent than the rich media without video, simple flash, and GIF and JPG in the advertisements (Spalding, Cole, & Fayer, 2009). Therefore, video and picture advertisements were investigated in this study.

Participants

We recruited 240 participants (45.4% men and 54.6% women; *M* age = 22.93 years, *SD* = 2.82, range = 18–29 years; 51.2% had a college education and 48.8% had a postgraduate education) in northern Taiwan. Each participant was paired with another with whom they had prior TV watching experience and were sufficiently familiar with communicating with each other via instant messaging. They were randomly assigned to one of the two ad modality conditions, resulting in two groups of equal sizes (individual *n* = 120 and social TV *n* = 120). To control the differences between subjects regarding social media usage and prior multitasking behavior, we used previous social media usage and multitasking behavior as covariates in the analyses.

Pretest for the Decision-Task Stimuli

A pretest was used to investigate participants' relative preferences for existing brands. We adapted our preference evaluation from Bhat and Reddy (2001) to develop an online pretest survey. The pretest was administered to an independent group of 37 participants with no prior preferences for select brands from five potential brands. Participants were asked to indicate their existing attitudes and preferences for the brands and they provided demographic information at the end of the survey. All participants were shown five brands in five different TV shows. As the main dependent measure, they were asked to indicate their brand preference and previous purchase experiences between the five brands from 1 (*strongly disagree*) to 7 (*strongly agree*). Results showed that participants held a neutral attitude toward two brands, Dr. Pepper (*M* = 4.03, *t* = 0.34, *df* = 36, *p* = .74) and Purell (*M* = 4.08, *t* = 1.64, *df* = 36, *p* = .11). These were thus used in the experiment.

Test Commercials and Program Environment

Participants in both groups watched 40 minutes of the same TV content from two episodes of two TV shows (*The Big Bang Theory* and *Cougar Town*), which included clear product placements. During which, there was a QR code in the upper right corner of the screen (see Figure 2). Participants were asked to use the designated device (the second screen) to scan the QR code to view the advertisement while watching.

Figure 2. Sample stimuli in main experiment.

Procedure

According to Bellman, Robinson, Wooley, and Varan (2017), there are three viewing conditions: individual viewing, coviewing, and social TV viewing. Coviewing involves a pair of participants sitting together in a test environment. Social TV viewing constitutes participants sitting in separate testing environments and communicating with each other using instant messaging on mobile devices. The TV series viewing area was divided to allow two groups: individual TV viewing and social TV viewing. Participants who consented to the study's procedures were assigned to the individual or social TV based on their preference, thus replicating a quasi-realistic situation in which participants would feel more natural and show their natural reactions, resulting in more accurate data.

Participants in both conditions had similar viewing screens and devices (tablet, keyboard, and mouse), and left their personal belongings outside the labs. In the individual viewing condition, participants only used the designated tablet to scan the QR code to view the advertisement. In the social TV condition, the two participants were in different labs, but were still able to communicate by sending messages, including text, emoji, and stickers through an instant messenger app installed on the tablet. No other form of social TV messaging (e.g., social media) was permitted to strictly control the communication process.

The researcher explained the experiment procedure to participants before commencing. A different TV show was used for participants to practice scanning the QR code appearing on the screen during the show. Participants who signed up for the social TV experiment attended additional training on a specific instant messenger app. After training, social TV participants went to a different lab and were individually asked to send two specific questions about the show to ensure the minimum amount of second screen interaction. When the shows ended, participants answered questions about their TV viewing experiences in a 10-minute online posttest survey.

Measures

Ad Effectiveness

Advertisements persuade customers to buy a product (Arens & Weigold, 2017). Therefore, factors related to purchase behavior were used to evaluate the ads' effectiveness. When audiences view advertisements, what emerges first is their awareness, followed by their attitude toward the content and products, and finally their purchasing behavior (Lavidge & Steiner, 1961). Advertising effect is a multifaceted and multivariable concept that is "linked to sales, persuasiveness, brand awareness, message comprehension, recall, recognition, type of argument (emotional/rational), likeability, attention, involvement, credibility, and coherence" (Beriain, 2013, p. 1023). Lavidge and Steiner's (1961) seminal model explains how advertisements influence consumer behavior by generating a hierarchy of effects from awareness through knowledge, liking, preference, conviction, and finally purchase intention. Other similar models in advertising such as AIDCA (attention, interest, desire, conviction, action; Bedell, 1940), AIDMA (attention, interest, desire, memory, action; Devoe, 1956), AISDALSLove (attention, interest, search, desire, action, like/dislike, share, love/hate; Wijaya, 2012), and AISAS (attention, interest, search, action, share; Kachamas, 2016) provide different ways to explain the consumer decision-making process. However,

our research focused how a consumer is influenced by watching placement advertisements in an episode of TV content on the first screen and subsequently receiving more product information on the second screen. Lavidge and Steiner's (1961) model is the only one that includes awareness and knowledge and is, therefore, more suitable to explain how consumer behavior is influenced by being aware of advertisement placements and receiving more product information subsequently. Furthermore, Lavidge and Steiner's pivotal work has been frequently cited, suggesting its continued relevance in today's context. Among recent studies, Lemon and Verhoef (2016) investigated today's increasingly complex consumer behavior in marketing and argued that Lavidge and Steiner's model on consumer cognition, decision, and behavior is still relevant today. Pike and Page (2014) argue that the hierarchy of effects in Lavidge and Steiner's model is closely aligned with consumer-based brand equity in the marketing literature. More recently, Pan, Shu, Kitterlin-Lynch, and Beckman (2021) studied cruise tourists' perceptions to propose recovery strategies for cruise businesses, referencing Lavidge and Steiner's model given its value in explaining consumer information processing.

Following Lavidge and Steiner (1961), this study focused on advertising effectiveness in terms of brand recall, attitude toward advertisements, brand attitude, and purchase intention. Therefore, effectiveness of advertisements was measured in two dimensions: awareness and persuasion. Participants were asked to indicate their awareness of brand recall, and the extent of persuasion by brand attitude, attitude toward the advertisement, and purchase intention. The measure of an advertisement's effectiveness was the combination of the total scores of brand recall and the average scores of brand attitude, attitude toward the advertisement, and purchase intention.

Brand recall was measured by the sum of three recall items adapted from a three-item scale (cf. Nelson, 2002; Norris & Colman, 1992). First, unaided recall was measured by asking participants to freely list the names of brands they recalled from the previous viewing session. "Correct," "partially correct," and "incorrect" brand name identifications were recorded. Second, aided recall was measured by asking participants to list the brand name of a product (e.g., soft drink) they recalled from a previous viewing session. Likewise, they were coded as "correct," "partially correct," and "incorrect." Third, brand recognition was measured by asking participants whether they recognized the product in question when presented with a picture of the product shown in the show. These were coded as "yes" and "no."

Brand attitude, ad attitude, and purchase intention were each measured by the mean of 7-point Likert scale items adapted from Baker and Churchill (1977), Lee and Aaker (2004), and Zeithaml (1988), respectively ($\alpha = .88$, $\alpha = .88$, and $\alpha = .86$, respectively). In each dimension, participants rated their level of agreement to three statements on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*).

Mediators

To measure the level of user gratification from social TV usage, we used nine items from K. Kim and colleagues (2016) to construct three categories: socialization ($\alpha = .89$, $M = 5.32$, $SD = 1.05$), entertainment ($\alpha = .86$, $M = 5.27$, $SD = 1.00$), and diversion ($\alpha = .90$, $M = 5.40$, $SD = 1.12$). To measure users' flow ($\alpha = .90$), we used three items from Jin (2011). All items related to user gratification and flow experience were measured using a 7-point Likert scale, with the anchors 1 (*strongly disagree*) to 7 (*strongly agree*).

Covariates

We measured previous social media intensity and multitasking behavior using scales adapted from Ellison, Steinfield, and Lampe (2007); Garaus and associates (2017); Kononova and Chiang (2015); and Ophir, Nass, and Wagner (2009). Participants indicated the extent to which they agreed with statements of their social media usage on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Multitasking behavior was measured as the sum of multitasking media behaviors by participants. The Appendix details questions used in the measurements.

Results

Hypotheses Testing

SPSS 22.0 software was used to obtain descriptive statistics, reliability analyses, and correlations. Cronbach's alpha statistics ranged from .86 to .90, demonstrating strong internal consistency of the constructs (Nunnally & Bernstein, 1994). We used R v3.5.0 to conduct an analysis of covariance (ANCOVA) and a path analysis to test mediation models.
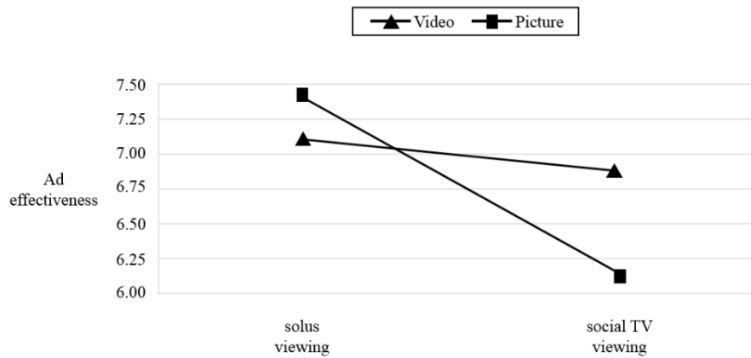
Advertising effectiveness was analyzed using a 2 (viewing condition) × 2 (modality of advertisement) ANCOVA and social media usage and media multitasking behavior as covariates. The two-way interaction between viewing condition and modality of advertisement was significant, $F(1, 234) = 4.54$, $p < .05$, $\eta^2 = .019$. The ANCOVA results (see Table 1) include a statistically significant two-way interaction effect.

Table 1. Analysis of Covariance Results.

| Source	SS	df	MS	F	η^2
Covariate					
Social media usage	20.3	1	20.32	5.67*	
Multitasking behavior	0.9	1	0.93	0.26	
Viewing condition (A)	28.5	1	28.47	7.95**	.033
Modality of ad (B)	3.2	1	3.18	0.89	.004
A × B	16.3	1	16.27	4.54*	.019
Error	838.4	234	3.583		
Total	907.6	239			

*$p < .05$. **$p < .01$.

The structure of the observed two-way interaction appears in Figure 3. In the individual viewing condition, a picture advertisement ($M = 7.34$) generated better advertising effectiveness than a video advertisement ($M = 7.08$), supporting Hypothesis 1. On the other hand, in the social TV viewing condition, a video advertisement ($M = 6.89$) generated better advertising effectiveness than a picture advertisement ($M = 6.24$), supporting Hypothesis 2.

Figure 3. The interaction effect of the viewing condition and modality of advertisement on advertising effectiveness.

Mediation Analysis

All pairwise correlation coefficients were significant ($p < .05$), except the relationship between ad modality and ad effectiveness (see Figure 4). To test whether the relationship between the viewing condition and ad effectiveness was mediated by the gratification of social TV usage, we employed a mediation analysis using 1,000 bootstrapped samples. We found that the indirect effect was significant, with a bootstrap standard error of .03 (95% CI[.027, .152]) and did not include zero (see Figure 5). However, the direct effect of the viewing condition on advertising effectiveness after accounting for the mediator was also found to be statistically significant ($\beta = -.14$, $z = -2.23$, $p < .05$). Thus, gratification of social TV usage partially mediated the effect of the viewing condition on advertising effectiveness. This partially supports Hypothesis 3.
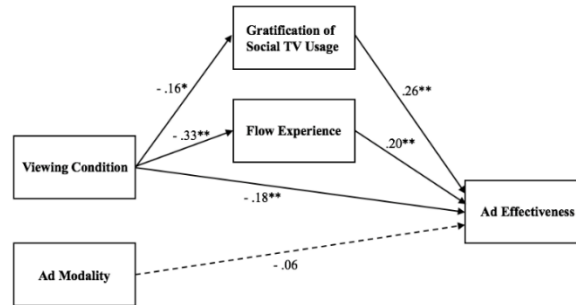

Figure 4. Path coefficient of the conceptual model. Dotted line indicates nonsignificant path. *p < .05. **p < .01.
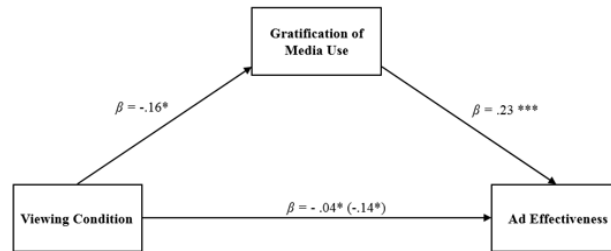
Figure 5. Mediation model: Gratification of media use. Bootstrapped 95% confidence interval (CI) for indirect effect = [.027, .152]; the β coefficient for the direct effect of AD viewing on purchase intentions after accounting for the mediator is shown in parentheses. *p < .05. ***p < .001.

Furthermore, to validate the role of flow experience on the relationship between viewing condition and effectiveness of an advertisement, we performed a formal mediation analysis using a bootstrap procedure (N = 1,000 samples), including viewing condition, flow experience, and advertising effectiveness as the key predictor, mediator, and dependent variable, respectively. Our results show that viewing condition predicted flow experience in the mediator model (β = −.33, z = −5.38, p < .001). In the dependent variable model, flow experience predicted advertising effectiveness (β = −.15, z = 2.30, p < .05), whereas the direct effect of the viewing condition was no longer significant when including flow experience as a predictor of ad effectiveness (β = −.13, z = −1.91, p = .06). The indirect effect of viewing condition on advertising effectiveness through flow experience was significant (β = .05, z = −2.12, p < .05). Given a standard error of .03 (95% CI[.012, .111], without zero), flow experience fully mediated the effect of the viewing condition on advertising effectiveness (see Figure 6), supporting Hypothesis 4.
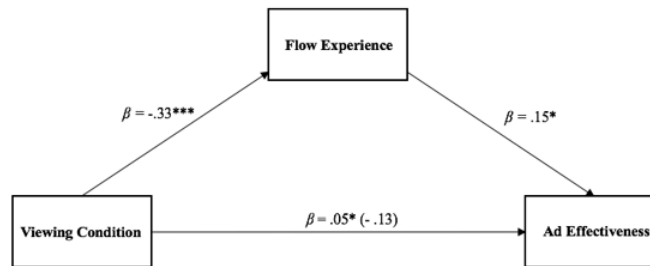
Figure 6. Mediation model: Flow experience. Bootstrapped 95% confidence interval (CI) for indirect effect = [.012, .111]; the β coefficient for the direct effect of AD viewing on purchase intentions after accounting for the mediator is shown in parentheses. *p < .05. ***p < .001.

Discussion and Conclusion

As one of the first empirical attempts to explore advertising effectiveness in different cross-media viewing conditions and to understand uses and gratifications and flow experience in cross-media consumption, our findings show the interaction between viewing conditions and advertising modality and the roles of gratifications and flow experience in a cross-media context. This study addresses the lack of scholarly literature on cross-media consumption and social TV use in Taiwan, and its findings support product placement strategies and synergistic social media campaigns with TV show producers in a highly competitive media market.

Our results corroborate previously discussed LCM and media vividness studies and confirm the two-way interaction between viewing condition and ad modality. Video advertisements are more effective in social TV viewing conditions. With a higher level of social interactions, these social elements distract viewers from the first screen (Brasel & Gips, 2011). Constant switches between screens lower viewers' immersion levels, and there is no effective information processing with low cognitive resources and immersion (Lang, 1995; Sundar, 2000). The high level of vividness perceived in a video advertisement competes with limited cognitive resources and therefore forces users to allocate more cognitive resources (Appiah, 2006). Moreover, video advertisements deliver delightful messages, are more persuasive, and generate better overall advertising effectiveness in social TV (Nisbett & Ross, 1980).

In contrast, picture advertisements generate better effectiveness during individual viewing. Although participants in this condition used a tablet for watching TV, they used it for acquiring advertisements on the second screen. This was considered a less immersive social viewing condition compared with the social TV viewing initially. With less distraction from the second screen, viewers instead experienced a higher level of immersion, and therefore less intrusive picture advertisements resulted in more effective advertising.

We show that advertisement modality did not significantly enhance its effectiveness. It is plausible that the video advertisement was too long (30 seconds). Participants might not have watched the entire advertisement, missing the brand name at the end. In the multitasking scenario, participants watching TV on the main screen might not have been able to focus their attention long enough on the video advertisement played on the second screen. Therefore, it follows that brand placements in storylines can increase audience attention, enhance brand awareness, and increase advertising effectiveness.

The U&G approach posits that audiences actively seek social psychological needs and intentionally consume media content (Xu & Guo, 2018). Positive emotions from the gratifications enhance advertising effectiveness (Bearden, Netemeyer, & Teel, 1989). Our results show that gratifications from media consumption partially mediate the relationship between TV viewing and advertising effectiveness. Better advertising effectiveness suggests higher gratification from media content.

Furthermore, flow experiences completely mediate the relationship between TV viewing and advertising effectiveness. Flow theory posits that when viewers experience "intense and focused concentration on what one is doing in the present moment" and "loss of reflective self-consciousness"

(Sherry, 2004, p. 332), the experiences become internal enjoyment. Greater indulgence implies greater enjoyment (Agarwal & Karahanna, 2000). Thus, higher levels of immersion imply higher levels of enjoyment and, therefore, more effective advertising (Saadé & Bahli, 2005, p. 332).

This study contributes to our understanding of TV viewing in Taiwan. However, being set in Taiwan, the findings may not be entirely generalizable globally. Future research can extend the scope and compare user behaviors in neighboring regions with similar technological penetration rates and conditions. Cross-region comparisons can further explore the role social media play in the new digital marketing world. Future studies can also investigate effect variations across different cross-media combinations as well as relationships between demographics and the uses and gratifications from different media. Our sample comprised equal gender representation, and we found that gender was not a significant predictor of advertising effect (t = 0.36, p = 0.72), consistent with prior research (Khan, 2017; Wang, 2014). Also, Aytuna and Çapraz (2018) showed that age differences influence Internet use among the elderly and children. Because our sample comprised participants 18–29 years of age, we did not investigate this. Further research can explore uses and gratifications in cross-media use for different age segments.

Furthermore, future studies may apply different models on the hierarchy of effects to measure effectiveness in advertising. We used Lavidge and Steiner's (1961) pivotal model for its suitability and continued relevance. Other models such as AIDMA (Devoe, 1956), AIDCA (Bedell, 1940), AISDALSLove (Wijaya, 2012), or AISAS (Kachamas, 2016) can be used to examine social TV from different perspectives using different research designs.

Altogether, this study has important theoretical and practical implications for researchers and practitioners. It contributes to the existing knowledge of social TV viewing and cross-media consumption in Taiwan, and offers empirical observations on uses and gratifications as well as flow experiences. The findings illustrate the adoption of cross-media consumption and provide directions to new marketing practices. As second screen adoption becomes more common, interactive and creative cross-media campaigns are poised to be more effective.

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Appendix: Measuring Items

Brand Memory

1. Please recall the brand shown in the episode you watched.
2. Which brands' products were shown in the video you watched?
3. Did you notice the brand in the episode you watched?

Brand Attitude

1. This is a good brand to me.
2. This brand is lovely to me.
3. This brand is attractive to me.

Advertisement Attitude

1. This advertisement is interesting to me.
2. This advertisement is attractive to me.
3. This advertisement is lovely to me.

Purchase Intention

1. I will buy this product.
2. I will buy this product when I need it.
3. I will consider buying this product.

Gratification

1. Watching episodes can increase my opportunities to talk to others.
2. Watching episodes can increase my interaction with others.
3. I enjoy the plot more when watching episodes with others.
4. I enjoy the excitement resulting from that episode.
5. The episode is interesting to me.
6. I love to watch this episode.
7. Watching episodes releases my daily stresses.
8. Watching episodes helps me to gain rest from daily life.
9. I watch episodes when I want to relax.

Flow experiences

1. I think I experienced flow when I watched the episode.
2. I think I experienced flow most of times that I watched the episode.
3. The level of flow experience that I experienced when I watched the episode.

Multimedia usage behavior

1. When I watch TV, I also use a personal computer to watch online videos, social media, or other online content such as searching for information or checking e-mail.
2. When I watch TV, I also use offline functions on the personal computer.
3. When I watch TV, I also use a laptop to watch online videos, social media, or other online content such as searching for information or checking e-mail.
4. When I watch TV, I also use offline functions on the laptop.
5. When I watch TV, I also use a tablet to watch online videos, social media, or other online content such as searching for information or checking e-mail.
6. When I watch TV, I also use a tablet to talk to someone via LINE, Messenger, FaceTime, etc.
7. When I watch TV, I also use a tablet to send messages.

8. When I watch TV, I also use a phone to watch online videos, social media, or other online content such as searching for information or checking e-mail.

9. When I watch TV, I also use a phone to send messages.

10. When I watch TV, I also use audio such as listening to music or radio.

11. When I watch TV, I also play video games.

12. When I watch TV, I also read print media such as magazine, fliers, or catalogs.

13. None of those items mentioned above.