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Social television: Examining the antecedents and consequences of connected TV viewing

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ABSTRACT

Extant research has examined the impact of social television on viewer behavior; however, little is known about how social TV strategies help the broadcasting industry develop relationships with the audience, increase and sustain viewer engagement. Building on the literature, this study surveyed a national sample of 300 U.S. TV viewers (18–49) to investigate how viewers' social TV participation predicts satisfaction, investment, and perception toward alternative programs and, subsequently, predicts program commitment and emotional consequences toward a committed program after viewer-program relationship breakups. The findings discover that the more viewers engage in social TV activities, the greater their satisfaction and investment toward their favorite programs. Given the quantity of options, viewers may perceive other programs as attractive, weakening their sense of exclusivity in viewer-program relationships. The findings further suggest that greater satisfaction and investment combined with less attractive alternatives may lead to higher program commitment. Viewers' post-breakup reactions are likely determined by their investment of resources in viewing and the quality of alternatives. Importantly, commitment mediates viewers' tendencies to persist in viewer-program relationships as well as breakup distress. This study highlights the underlying mechanism through which viewers' social TV participation influences the dynamics of the relationships in the viewer-program dyad.

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1. Introduction

Social television, brought about by the integration of TV and digital technology to support sociable, computer-mediated group viewing experiences, has made the act of TV viewing a communal, interactive, and engaging experience (Chorianopoulos & Lekakos, 2008; Cohen & Lancaster, 2014; Oehlberg, Ducheneaut, Thornton, Moore, & Nickell, 2006; Shin, 2013). With the incidence of multi-screening, TV viewers can follow their favorite programs, share TV-related content and reactions, and connect with fellow viewers before, during, and after a program. According to the Council for Research Excellence (Rao, 2014), one in five online Americans aged 15 to 54 reported daily use of social media related to their TV viewing. In another study, Nagy and Midha (2014) found that 85% of primetime-active Twitter users habitually tweeted about TV programs, with 72% tweeting while watching live, 60% tweeting while

not watching, and 58% tweeting while watching on other content platforms (e.g., Netflix). As a result, there is a growing interest among broadcasters to foster, interact with, and maintain computer-mediated social relationships with viewers around their programming (Highfield, Harrington, & Bruns, 2013).

In an effort to understand the social TV phenomenon, researchers from industry and academia alike have started exploring the dynamics of TV-related digital media usage, viewers' cross-platform engagement, and the impact of social TV on viewer behavior (e.g., Nielsen, 2013; 2014; Phalen & Ducey, 2012; Hill, 2012; Smith & Brenner, 2012). Current research has discovered a two-way causal influence between social TV strategies and TV tune-in rates, suggesting that social chatter around programming is an important component of TV branding strategies (Hill, 2012; Nielsen, 2013). While Twitter and text messaging have a greater impact on real-time social TV engagement, Facebook and offline communications more strongly influence the generation of interest among infrequent viewers (Kaye, 2015). In that sense, social TV strategies are complementary for building relationships with the audience, driving conversations about programming, and

increasing ratings. The rise of social TV offers a positive opportunity to build viewer engagement with TV programs and their advertisers (Nagy & Midha, 2014; Pynta et al., 2014).

Cohen and Lancaster (2014) revealed that viewers' engagement with in-person and social media coviewing can be predicted by viewers' emotional contagion, their need to belong, and three dimensions of an individual viewer's coviewing orientation (i.e., need for company, need for solitude, and audience monitoring). Lim, Hwang, Kim, and Biocca (2015) further proposed three levels of social TV engagement (i.e., functional, emotional, and communal) among sports event viewers. The results showed that increased interactivity resulting from functional and communal engagement helps induce social presence, or viewers' feelings of being with others. While communal engagement was found to be associated with channel loyalty, emotional engagement was found to lead to channel loyalty via increased channel commitment. Therefore, it is important for broadcasters to engage viewers with social TV activities, which in turn can help maintain viewing consistency and develop bonding relationships with viewers.

In line with these findings, one question that remains is how social TV influences the nature of bonding relationships that viewers hold in the view-program dyad. Because TV broadcasters strive to exploit distinct brand images and brand personalities to combat the ever-increasing competition (Chan-Olmsted & Cha, 2008; Sung & Park, 2011), viewers may perceive some programs at a symbolic level and form imaginary relationships with programs in ways that resemble interpersonal relationships (Russell, Norman, & Heckler, 2004). Similar to interpersonal and brand relationships (Fournier, 1998), viewer-program relationships may evolve over time and generate feelings of commitment, intimacy, and emotional attachment to a program and its characters (Russell et al., 2004). Considering that broadcasters now incorporate social TV strategies to enhance the viewing experience as well as to increase and sustain viewer engagement (Nielsen, 2014), this research aims to investigate the mechanism through which social TV helps develop and maintain viewer-program relationships along with the dynamics of such relationships. Specifically, by employing the investment model, a well-established theoretical model drawn from social psychology and relationship literature, this research examines the impact of social TV participation on the antecedents of viewer engagement, the development of committed viewer-program relationships, and the emotional consequences of anticipated relationship breakups when the program comes to an end.

2. Literature review

2.1. TV program commitment

In social psychology, commitment refers to an individual's long-term orientation towards a relationship, including feelings of psychological attachment and intent to persist (Rusbult, 1983). The commitment level is the state of psychological attachment to a relational partner or an attitudinal position (Kiesler, 1971); it is considered the most proximal predictor of relationship stability, pro-relationship transformation, and willingness to depart from one's immediate self-interest (Rusbult, 1983). Commitment plays a central role in shaping motivation and behavior in an ongoing relationship (Rusbult, 1983; Van Lange et al., 1997). Empirical evidence shows that commitment is best regarded as a mediating variable that predicts a wide range of behavior in the relationship paradigm (Drigotas & Rusbult, 1992).

In this research, commitment is applied to capture the intensity of viewer engagement in a viewer-program relationship. Program commitment is therefore defined as *a viewer's long-term attitudinal disposition toward a program, often reflecting emotional or* *psychological attachment to the program.* There is no doubt that viewers' relationships with programs almost certainly differ in some ways from their interpersonal relationships; nevertheless, it is reasonable to suggest that the relationships they form and maintain with a variety of programs have qualities similar to those of interpersonal relationships (Russell et al., 2004). Despite the different explanatory territories this applied concept may have due to the nature of the media context, program commitment is believed to reveal the dynamic media user variables and a variety of relationships viewers develop with programs.

As previous studies suggested that social TV activities could help raise awareness of TV programs and enhance the viewing experience (Lim et al., 2015; Nagy & Midha, 2014; Nielsen, 2014), the synergies between TV and program-related digital platforms are expected to increase the engaged audience base. Similarly, some researchers have demonstrated how users' virtual experiences with a brand may lead to brand loyalty and commitment (Chan & Li, 2010; Moon, Kim, Choi, & Sung, 2013; Wirtz et al., 2013). To investigate the effect of social TV on the development of bonding relationships in the viewer-program dyad, we turn to the literature on the investment model.

2.2. Investment model

As an extended concept of interdependence theory, the investment model of interpersonal relationships employs interdependence variables to analyze one's tendency to remain in a relationship (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). The model identifies three predictors of relationship commitment; namely, satisfaction, investment size, and quality of alternatives (Rusbult, 1980; 1983). First, satisfaction level describes the positive versus negative feelings experienced in a relationship. Individuals' satisfaction increases their commitment to maintain an ongoing relationship. Second, investment size refers to the magnitude and importance of the intrinsic and extrinsic resources that are attached to a relationship. Intrinsic investments are the resources that go directly into the relationship, such as time, emotional effort, and self-disclosure. Extrinsic investment refers to initially extraneous resources that become inextricably linked to the relationship, including mutual friends, shared memories, objectives that are uniquely associated with the relationship, and more (Rusbult & Buunk, 1993). Because intrinsic and extrinsic investments cannot be readily removed once invested, investments are found to increase the commitment level and help to keep individuals in their relationships (Rusbult, 1983). Third, the quality of alternatives is the perceived desirability of the best available alternatives to a relationship (Rusbult, Martz, & Agnew, 1998). Individuals are more likely to be committed to their relationships when available alternatives are limited in number or are less attractive compared to the existing relational partner (Impett, Beals, & Peplau, 2002).

Taken together, individuals become more committed in a relationship when they perceive higher levels of satisfaction, greater investment size, and alternatives that are inferior to their current associations. Commitment level is a consequence of increasing dependence. This psychological viewpoint has garnered great support in predicting the development of commitment and relationship maintenance (Rusbult, 1983). The investment model has also been applied to help understand the development of consumer-brand relationships. For example, Sung and Campbell (2009) tested the overall power of these investment model variables in determining consumers' commitment toward their relationships with brands. The results showed that consumers develop a higher level of brand commitment when greater satisfaction and investment are present combined with lower-quality alternatives. Building on these results, Sung and Choi (2010)

delved into the interactive effects among the three variables and observed that consumer-brand relationships are dynamic and complex rather than linear and monotonic. With respect to the significant findings that have been consistently discovered in such imaginary relationships, the investment model variables are considered applicable for understanding the effect of social TV participation on the formation of viewer-program relationships.

As viewers have become more mobile and networked, broadcasters are now incorporating social TV strategies to facilitate conversations around the programs they air and to maximize the time viewers spend interacting with program-related content (Chan-Olmsted, 2011; Pagani & Mirabello, 2011). As a result, viewers who participate in social TV activities surrounding a program may become more engaged with the program (Hill, 2012; Lewin, Rajamma, & Paswan, 2015). Following this logic, we hypothesize that broadcasters' strategic use of social TV may increase viewers' dependence in viewer-program relationships. Specifically, the basis of such dependence, satisfaction level, refers to viewers' fulfillment responses toward the programs. Social TV strategies, as an extension of program content and promotional efforts, may influence viewers' cognitive expectations about programs and audience activity and consequentially improve program satisfaction (Perse & Rubin, 1988). In other words, viewers' satisfaction level may increase as a result of pleasing and gratifying mediated coviewing and participatory behavior through social TV activities (Cohen & Lancaster, 2014).

Second, investment size is conceptualized as viewers' overall perception of the degree of resources they have put into their viewing experience, including financial, cognitive, emotional, behavioral, or time assets. As the social TV phenomenon is widespread and occurs 24 hours a day, seven days a week, it is reasonable that the more viewers engage in social TV activities, the likelier they are to invest resources in ways that connect them with the programs (Nagy & Midha, 2014; Rusbult, 1980; 1983; Rusbult & Buunk, 1993). Lastly, viewers' perception of the quality of alternatives is based on the extent to which their most important program-related needs could be fulfilled by alternative programs other than their favorite programs. Considering that social TV participation permits viewers to search for program-related information, share their feelings, and to connect with other viewers, it is likely to influence their viewing behavior and program choices as well as trigger action (Nagy & Midha, 2014; Nielsen, 2014). As such, viewers who participate in social TV activities related to their favorite programs may fulfill their needs effectively. Consequently, viewers may persist in the face of tempting alternative programs and perceive them as less attractive. The following hypothesis is therefore developed.

H1. Social TV participation will be positively associated with viewers' (a) satisfaction level and (b) investment size, but negatively associated with (c) the quality of available alternatives.

Based on the tenets of the investment model, if broadcasters provide viewers with multi-screen experiences that meet their expectations and gratify their program-related needs, viewers are expected to commit themselves to establishing and maintaining long-lasting viewer-program relationships. In that sense, greater satisfaction is predicted to promote frequent viewing behavior such as watching live TV and recording programs (Lu & Lo, 2007; Nielsen, 2014) and evoke a higher degree of program commitment in viewer-program relationships. In addition, the investment model posits that investing resources in a relationship may strengthen one's commitment level (Rusbult, 1983). Because viewers today are likely to invest resources of all kinds (e.g., time, effort, and attention) into their relationships with programs across screens and devices (Nagy & Midha, 2014; Pynta et al., 2014), their

investment is likely to serve as a psychological inducement that shapes their program commitment and helps to lock them into viewer-program relationships by increasing the costs associated with switching and termination (Burnham, Frels, & Mahajan, 2003; Morgan & Hunt, 1994). As another important predictor of program commitment, viewers may feel more committed when they believe the alternatives are poorer in quality compared to their favorite programs. Given the prevalence of social TV and its impact on viewer experiences, it is reasonable to assume that viewers are likely to possess high program commitment if they believe they are obtaining unique value and experiences that other programs cannot easily provide. Accordingly, the following hypothesis is formulated.

H2. Viewers' (a) satisfaction level and (b) investment size will be positively associated with TV program commitment, while (c) the quality of available alternatives will be negatively associated with program commitment.

2.3. Viewer-program relationship breakups

To fully explore the influences of social TV on the dynamics of viewer-program relationships, this research extends the investment model to examine how viewers respond to the dissolution of such imaginary relationships. In the field of media psychology, some researchers have begun to examine how viewers engage in parasocial relationships with media personas (Dibble & Rosaen, 2011; Eyal & Dailey, 2012; Horton & Wohl, 1956; Schramm & Wirth, 2010) and how they react to the termination of such relationships, namely parasocial breakups (Eyal & Cohen, 2006). In a typical program-viewing context, breakup situations may occur due to the ending of a show, a media character being removed from the show, or something happening to the actor or actress who plays the role. The literature suggests that parasocial breakups may trigger negative experiences that resemble in many ways the dissolution of social relationships, even though such separations are less stressful than those of close relationships (Cohen, 2003; 2004; Eyal & Cohen, 2006). It can thus be argued that post-breakup emotions are expected to exist in the context of viewer-program relationships. In the normal course of broadcasting, programs go on and off the air. Expanding on parasocial breakup studies, the magnitude of viewers' distress following the demise of a viewer-program relationship is likely to involve a significant and recurrent feature of viewers' emotional lives and of their experience with programs in general.

Because committed viewers are more likely to be devoted to their favorite programs and have more experience and knowledge with the format and content of the programs, they may tend to actively draw out rituals associated with their program viewing for as long as possible (Gantz, Wang, Paul, & Potter, 2006), relying on various digital platforms (Kaye, 2015; Nagy & Midha, 2014; Nielsen, 2014). Their positive feelings toward the programs may, therefore, extend beyond their viewing experience. It follows that preoccupied viewers who believe that the viewer-program relationships to which they are committed, and in which they have invested a great deal of resources, offer them desirable outcomes and high satisfaction, and thus they may resist the dissolution of viewer-program relationships. In addition, whether viewers can easily find a desirable alternative or consider other programs as inferior to their favorite programs may influence the degree of distress that viewers experience after relationship breakups occur (Simpson, 1987). On the basis of the preceding reasoning, the following hypothesis is proposed.

H3. Viewers' (a) satisfaction level and (b) investment size will be

positively associated with viewer-program relationship breakup distress, while (c) the quality of available alternatives will be negatively associated with viewer-program relationship breakup distress.

The investment model assumes that commitment mediates tendencies to persist in ongoing relationships and to enact pro-relationship maintenance behaviors (Rusbult, 1983; Rusbult et al., 1998). In this research, we propose that commitment is an important factor in viewer-program relationships, predicting not only a variety of behaviors that may be relevant to promoting long-term stability but also viewers' breakup status (Arriaga, Reed, Goodfriend, & Agnew, 2006; Drigotas & Rusbult, 1992). That is, committed viewers will desire reciprocation and union in the relationships and will be less likely to initiate the breakup. The more viewers engage with the programs, the stronger their reactions will become toward viewer-program relationship breakups. They will be highly sensitive to relationship disruptions and susceptible to problems in the adjustment following such breakups (Barbara & Dion, 2000). As such, the following hypotheses are put forth. Fig. 1 shows the visual description of the hypothesized model.

H4. Viewers' program commitment will be positively associated with viewer-program relationship breakup distress.

H5. Program commitment will mediate the relationships between (a) satisfaction, (b) investment, (c) the quality of available alternatives and viewer-program relationship breakup distress.

3. Methodology

3.1. Participants

In an attempt to understand the influences of social TV on the formation and dissolution of viewer-program relationships, a survey method was employed to test the proposed hypotheses. Samples were randomly identified from a research pool administered by Qualtrics Panel. In total, 345 U.S. participants completed the study, of which 300 were included in the final sample after eliminating cases that took less than one-third of the median time to answer and respondents who exhibited extreme and consistent rating patterns. Of these participants, 51.7% were male and 48.3% were female. The average age was 35.6. Approximately 82.0% of the participants were Caucasian, 6.0% African American, 6.0% Asian, 3.0% Hispanic, 1.7% multiracial, and 1.3% "other." On average, participants reported they had been watching a self-selected program for about 3.44 years.

3.2. Procedure

Participants were first asked to identify a program with which they considered themselves to have a relationship. They were then asked to rate a set of investment model and commitment-related questions to evaluate their psychological tendency toward the program they chose. Upon completion of this section, they were asked to imagine their responses if the program was taken off the air, after which they completed questions related to relationship breakup distress. According to Cohen (2003, 2004), the hypothetical method is considered most appropriate due to the fact that it does not rely on reconstruction from distant memories and previous experiences, nor does it limit respondents in their choice of program. Moreover, this approach may counter any variance caused by other events that coincided with the end of the viewer-program relationship that might impact reactions to the breakup condition (Cohen, 2003). In the last section, a series of demographic items was used to collect participants' demographic characteristics. The full questionnaire required about 15 minutes to complete.

3.3. Measures

3.3.1. Social TV participation

Participants were asked to identify the digital platform(s) they used (e.g., Facebook, Twitter, Google+, Pinterest, Instagram, tvtag, viggle, YouTube, official website/blog, fan forum, Tumblr) and specific activities they engaged in (e.g., "check in to the program," "watch program-related videos," "check program-related updates," "see what other people think about the program," "participate in program-related discussions/forums," "meet other viewers," etc.) related to the self-selected program. They were also asked to report the frequency and duration of their weekly usage of social TV. Following Paek, Hove, Jung, and Cole's (2013) procedure, an index score was calculated by multiplying the frequency and duration of their usage to determine the intensity of participants' social TV participation.

3.3.2. Investment model variables

The instruments for the investment model variables were adopted and modified from previous research (Rusbult, 1983). Specific items are listed in Table 1. The measures include five items for satisfaction ($\alpha = 0.84$), five items for investment ($\alpha = 0.85$), and five items for quality of available alternatives ($\alpha = 0.77$). The items were rated on a 7-point Likert scale (*strongly disagree* = 1 to *strongly agree* = 7).
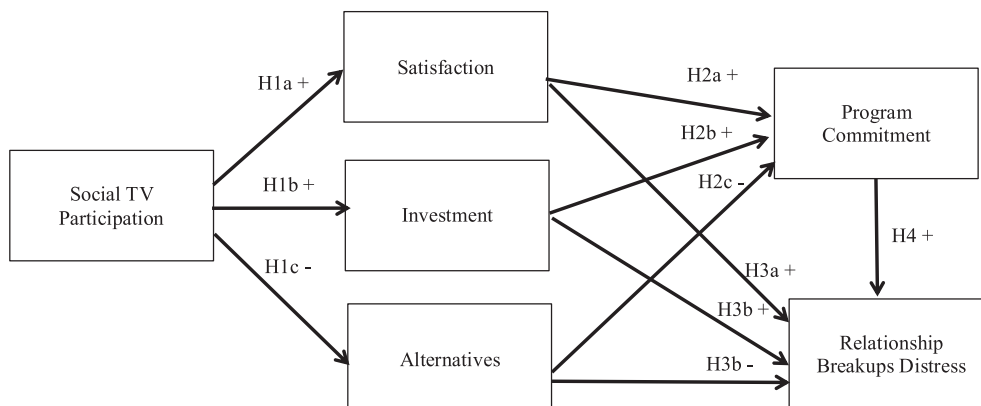

Fig. 1. Hypothesized model.

3.3.3. Program commitment

The instruments assessing program commitment were adopted and modified from previous research (Rusbult, 1983; Sung & Choi, 2010). Participants were asked to indicate the extent to which they felt committed to the self-selected program ($\alpha = 0.94$). Six items were rated on a 7-point Likert scale (*strongly disagree* = 1 to *strongly agree* = 7).

3.3.4. Viewer-program relationship breakup distress

Based on previous research (Cohen, 2003; 2004; Eyal & Cohen, 2006), items used to assess breakup distress in parasocial relationships were adopted and tailored for this study. Participants rated 14 items indicating how much stress they would feel if their favorite program were taken off the air ($\alpha = 0.89$) using a 7-point Likert scale (*strongly disagree* = 1 to *strongly agree* = 7).

4. Results

4.1. Social TV participation

Regarding participants' program-related social TV activities,

around half of the participants indicated that they used Facebook (49.0%), followed by YouTube (33.9%), and Twitter (17.7%). They used social TV to check in to the program (37.1%), watch program-related videos (37.1%), check program-related updates (32.3%), see program-related photos (31.3%), and find out what other people think and talk about the program (26.5%). The results further revealed that participants were less involved in direct interactions with others, such as participating in program-related discussions/forums (8.6%) and meeting other viewers (6.3%). In addition, participants' top three self-selected TV programs were *The Walking Dead* (9%), *The Big Bang Theory* (7%), and *Modern Family* (3%).

4.2. Hypotheses testing

To test the hypotheses (H1—H4), a path analysis using a just-identified model was performed. Social TV usage was treated as the antecedent of the investment model, including satisfaction, investment, and quality of available alternatives, through which these variables predicted TV program commitment and relationship breakup distress. As the model was saturated (i.e., just-identified), the interpretation of the results was focused on the

Table 1
Adopted measurement items (N = 300).

	Mean	S.D.
Satisfaction	5.58	0.92
I feel satisfied with my relationship with this TV program.	6.09	0.90
My relationship with this TV program does a good job in fulfilling my needs.	5.92	0.95
My relationship with this TV program makes me very happy.	5.96	1.00
My relationship with this TV program is close to ideal.	5.60	1.17
Having a relationship with this TV program is one of the most satisfying things in my life.	4.39	1.67
Investment	4.49	1.19
Compared to other TV programs I know, I have invested a great deal in my relationship with this TV program.	5.24	1.32
I feel very involved in my relationship with this TV program — like I have put a great deal into it.	5.02	1.47
Many aspects of my life have become linked to this TV program (recreational activities, etc.), and I would lose all of this if the relationship with the TV program were to end.	3.42	1.64
I have put a great deal into my relationship with this TV program that I would lose if the relationship were to end.	3.70	1.71
I would be willing to spend extra time to watch this TV program.	5.11	1.41
Quality of available alternatives	5.03	0.88
Other alternative TV programs of the same genre are attractive to me.	5.11	1.24
TV programs other than this TV program with which I might become involved are very appealing.	5.22	1.13
My alternatives to the relationship with this TV program are close to ideal.	4.73	1.32
If I weren't watching this TV program, I would do fine. I would find another appealing TV program to watch.	4.98	1.30
My alternative TV programs are attractive to me.	5.12	1.10
Program commitment	4.47	1.32
I want my relationship with this TV program to last a very long time.	5.33	1.34
I am committed to maintaining my relationship with this TV program.	5.28	1.36
I would feel very upset if my relationship with this TV program were to end in the near future.	5.12	1.55
I feel very attached to my relationship with this TV program - very strongly linked to it.	4.75	1.63
I want my relationship with this TV program to last forever.	4.53	1.66
I am oriented toward the long-term future of our relationship (for example, I imagine having a relationship with this TV program several years from now).	4.82	1.53
Viewer-program relationship breakup distress	4.14	0.98
Feel lonely	3.34	1.69
Watch another program from the same TV network	4.85	1.16
Become less excited about watching TV	3.90	1.47
Watch reruns, taped episodes, DVDs, or from other sources	4.90	1.50
Feel like I lost a close friend	3.86	1.76
Feel sad	4.38	1.66
Try to do something to change the situation (e.g., write an email to the TV network, etc.)	3.68	1.76
Miss this TV program	5.66	1.16
Find a different TV program to like (reverse)	2.64	1.02
Look for information about this TV program in other places	4.51	1.49
Feel disappointed	5.11	1.50
Feel a void in my life	3.57	1.77
Feel angry	3.53	1.86
Try to interact with the TV program in another way (e.g., go to the official Website, Facebook fan page, etc.)	4.13	1.59

Table 2
Standardized path coefficients.

Path	Relationship	β	p	Hypothesis
STP → SAT	+	0.17	<0.01	1a: Supported
STP → INV	+	0.39	<0.001	1b: Supported
STP → QAA	+	0.20	<0.001	1c: Not supported
SAT → TPC	+	0.29	<0.001	2a: Supported
INV → TPC	+	0.67	<0.001	2b: Supported
QAA → TPC	−	−0.09	<0.05	2c: Supported
SAT → RBD	+	0.03	0.35	3a: Not supported
INV → RBD	+	0.39	<0.001	3b: Supported
QAA → RBD	−	−0.08	<0.05	3c: Supported
TPC → RBD	+	0.37	<0.001	4: Supported

Note: STP = social TV participation; SAT = satisfaction; INV = investment; QAA = quality of available alternatives; TPC = TV program commitment; RBD = relationship breakup distress.

path parameters. The results (Table 2) showed that social TV participation significantly predicted satisfaction ($\beta = 0.17$, $p < 0.01$), investment ($\beta = 0.39$, $p < 0.01$), and quality of available alternatives ($\beta = 0.20$, $p < 0.01$). The relationships between social TV participation and these investment model variables were all positive, and thus H1a and H1b were supported. However, H1c was not supported. Next, as expected, satisfaction ($\beta = 0.29$, $p < 0.01$), investment ($\beta = 0.67$, $p < 0.01$), and quality of available alternatives ($\beta = -0.09$, $p < 0.05$) significantly predicted program commitment. The positive path coefficients supported H2a and H2b, and the negative path coefficient supported H2c. Additionally, investment ($\beta = 0.39$, $p < 0.001$) and quality of available alternatives ($\beta = -0.08$, $p < 0.05$) significantly predicted relationship breakup distress. H3b and H3c were supported. Nevertheless, satisfaction ($\beta = 0.03$, $p = 0.35$) did not significantly predict relationship breakup distress. H3a was not supported. Finally, a significant positive relationship was found between program commitment and relationship breakup distress ($\beta = 0.37$, $p < 0.01$). Therefore, H4 was supported.

4.3. Mediation analysis

In order to delve into the mediating role of program commitment, formal tests of mediation effects using a bootstrap procedure (N = 2500 samples) were conducted. The mediation effects of program commitment on the relationships between satisfaction, investment, and quality of available alternatives, respectively, and relationship breakup distress were examined. The results (Table 3) showed that the direct effect of satisfaction ($\beta = 0.03$, $p = 0.47$, $SE = 0.05$, CI: −0.07 to 0.15) on relationship breakup distress was not significant, while its indirect effect through program commitment was significant ($\beta = 0.11$, $p < 0.01$, $SE = 0.03$, CI: 0.05 to 0.17). That is, program commitment fully mediated the relationship between satisfaction and relationship breakup distress. The direct effect of investment ($\beta = 0.39$, $p < 0.01$, $SE = 0.06$, CI: 0.27 to 0.51) on relationship breakup distress and its indirect effect through TV

program commitment ($\beta = 0.25$, $p < 0.01$, $SE = 0.04$, CI: 0.16 to 0.34) were both significant, indicating that TV program commitment partially mediated the relationship between investment and relationship breakup distress. Further, the direct effect of quality of available alternatives ($\beta = -0.08$, $p = 0.14$, $SE = 0.05$, CI: −0.18 to 0.03) on relationship breakup distress was not significant. However, its indirect effect through TV program commitment ($\beta = -0.03$, $p = 0.07$, $SE = 0.02$, CI: −0.08 to 0.005) was marginally significant. The results suggest that TV program commitment fully mediated the relationship between quality of available alternatives and relationship breakup distress. Based on these results, H5a, H5b, and H5c were supported.

5. Discussion

Considering the growing adoption of social TV in the broadcasting industry, this research is one of the first to empirically examine the effect of social TV on the dynamics of the linkage between viewers and programs. Our results suggest that viewers interact with programs and other viewers through social TV participation as an extension of their viewing experience. Based on the top social TV activities that emerged from this study, the findings indicate that viewers are likely to engage in social TV activities more for program-related updates and monitoring information about other viewers' reactions than for connecting with viewers of the same program. This research further discovers that the more viewers engage in social TV activities, the greater their satisfaction and investment toward their favorite programs. However, viewers may still perceive other alternative programs as attractive. Because broadcasters actively integrate social media content into their programming (Hill, 2012; Lim et al., 2015), it is possible that viewers may encounter conversations related to other programs while they engage in social TV about the programs they view (Nielsen, 2014). Viewers may then become interested and activated to seek program content, search for information, and engage in other activities with regard to alternative programs (Nagy & Midha, 2014). As viewers today have a wealth of options available, their sense of exclusivity in the viewer-program relationships they hold may be relatively weak.

Akin to interpersonal and brand relationships (Rusbult, 1980; 1983; Sung & Campbell, 2009), the findings of this study further suggest that greater satisfaction and investment combined with fewer alternatives perceived as attractive generated through social TV participation lead to a higher level of program commitment. Although viewers' sense of exclusivity in such imaginary relationships might be relatively weak as they have the option to simultaneously form relationships with several programs, the investment model variables appear to be significant predictors of viewers' program commitment levels. Similarly, this study finds that viewers' post-breakup reactions are determined by the size of their investment in relation to the program and the perceived

Table 3
Standardized direct and indirect effects.

Direct effect	Indirect effect	Mediation
SAT → RBD 0.03 ($SE = 0.05$, CI: −0.07 to 0.15)	SAT → TPC → RBD 0.11** ($SE = 0.03$, CI: 0.05 to 0.17)	Full
INV → RBD 0.39** ($SE = 0.06$, CI: 0.27 to 0.51)	INV → TPC → RBD 0.25** ($SE = 0.04$, CI: 0.16 to 0.34)	Partial
QAA → RBD −0.08 ($SE = 0.05$, CI: −0.18 to 0.03)	QAA → TPC → RBD −0.03* ($SE = 0.02$, CI: −0.08 to 0.005)	Full

Note: SAT = satisfaction; INV = investment; QAA = quality of available alternatives; TPC = TV program commitment; RBD = relationship breakup distress.

N = 2500 samples, *$p = 0.07$ (marginally significant), **$p < 0.01$.

quality of alternatives. However, viewers' satisfaction level do not have a significant direct effect on breakup reactions. That is, besides the traditional strategic focus of audience satisfaction (Lu & Lo, 2007), the results of this study highlight the importance of viewers' perceived investment and the quality of available alternatives in ongoing viewer-program relationships. Viewers may experience stronger stress when they believe the value of their devoted resources will be substantially diminished or completely lost if their relationships were to dissolve (Casalo, Flavian, & Guinaliu, 2007). In addition, viewers may experience stronger post-breakup emotions when they believe they are obtaining unique value and their important needs can be effectively fulfilled only by the current ongoing viewer-program relationship.

These findings further support the role of program commitment as a mediator between investment model variables and the level of viewer-program relationship breakup distress. As predicted, viewers with high program commitment are found to feel more stress when the ongoing viewer-program relationships are about to come to an end. While program commitment fully mediates the effect of satisfaction and alternatives on viewers' level of breakup stress, it only partially mediates the effect of investment on their breakup reactions. That is, their anxiety regarding separation from a committed program is anticipated to result in distress, varying in magnitude, partly as a function of the degree of their commitment toward the program. The results provide additional support for previous parasocial breakup research, indicating that viewers' emotional reactions toward viewer-program relationship breakups follow patterns similar to the dissolution of close social relationships. Even so, the negative outcomes following viewer-program relationship breakups are believed to be weaker than the distress exhibited at the time of social breakups (Eyal & Cohen, 2006). A longer lead time to allow viewers to prepare for the end of a TV program may likely mitigate the negative effect of such relationship breakups.

Theoretically, this psychological approach builds on relationship phenomena and contributes to our understanding of social TV and its effects. Specifically, this research provides empirical evidence for the role of social TV in attaining program commitment, which promotes viewers' willingness to have sustained relationships with programs. These findings suggest that viewer-program relationships resemble interpersonal relationships, and the nature of such imaginary relationships may differ across viewers; some may be infused with emotions and involve obsessive thoughts while others may simply be habitual and thus less emotionally connected and more cognitively based.

This study is also significant in employing psychological theories to define viewer profiles and provide managerial implications for broadcasters as to how to create, strengthen, and perpetuate viewer-program relationships through social TV activities. It is important to leverage the momentum of social TV, to encourage interaction, and to immerse viewers more richly and deeply beyond their viewing experience (Hill, 2012; Kaye, 2015; Lim et al., 2015; Nagy & Midha, 2014; Nielsen, 2013; 2014; Pynta et al., 2014), which in turn is an effectual means to improve satisfaction and intensify relationship investments that lead to strong viewer-program connections. In addition, broadcasters need to develop strategies to increase viewers' satisfaction and investment and to decrease the perceived attractiveness of alternatives in their program-related multi-screen experience as ways to enhance viewers' level of program commitment. In sum, broadcasters' branding strategies are essential for cutting through the clutter of competition. In that light, this study adds to the body of audience research and provides broadcasters with meaningful implications for relationship management, given that profitable TV branding advantages usually come from strong viewer-program relationships.

This research, however, has its limitations. First, while the participants were randomly drawn from a national sample of TV viewers aged 18 to 49, the age distribution of participants might not perfectly reflect that of social TV users. Considering that young viewers are more active on social media platforms (Nagy & Midha, 2014; Rao, 2014), the current findings in relation to viewers' social TV activities and viewer-program relationships might not capture the entire picture. Therefore, the current sample may be expanded to younger viewer groups in order to further explore the social TV phenomenon and its effect on the development and dissolution of viewer-program relationships. In addition, this study examined only the linear effect of investment model variables on program commitment. Potential interactive effects among those predictors may be examined to further our understanding of the interplay among key predictors of viewer engagement. Moreover, program commitment was conceptualized as an attachment-based construct that defined the intensity of viewer engagement. Considering the complex, multidimensional nature of commitment that has been studied in relationship marketing (e.g., Fullerton, 2003; 2005), future research may be conducted to further explore the role of different types of commitment, including affective and continuous commitment, in the development and dissolution of viewer-program relationships.

Although this study made a concerted effort to illuminate the impact of social TV participation on the bonding relationships that viewers hold with programs, a longitudinal field study may offer more comprehensive insights into the development and maintenance of such imaginary relationships. Finally, even though viewers might be able to envision deleterious outcomes following viewer-program relationship breakups, their actual feelings at the time of breakups may be much greater than the levels observed in the current hypothetical design. In that sense, future research could benefit from conducting an assessment of specific programs of different genres to examine the nature of viewer-program relationships and the impact subsequent to relationship breakups relative to contextual differences across program genres when programs come to an end.

Despite the limitations, this research highlights the underlying mechanism by which viewers' participation in social TV activities help develop committed viewer-program relationships and provides important managerial implications for broadcasters to influence audience behaviors.

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