

Bridging social capital matters to Social TV viewing: Investigating the impact of social constructs on program loyalty

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ABSTRACT

Social TV (STV) that utilizes social media to create an interactive backchannel for video viewing increasingly attracts social audiences. This national web survey in Singapore was conducted to investigate 600 social media users with online video discussion experiences. The STV model examines the relationships and mediation effects among social constructs (i.e. perceived sociability, perceived social presence, and bridging social capital), program commitment, and program loyalty. Structural equation modeling results show that bridging social capital is positively associated with commitment and loyalty to programs. In addition, perceived social presence increases program commitment, but perceived sociability has no effect. Perceived sociability, as a predictor of social presence, and social presence itself are positive factors affecting bridging social capital. Moreover, bridging social capital significantly mediates the relationships between perceived sociability and program loyalty. Theoretical and practical implications for STV's social constructs and program loyalty are discussed.

1. Introduction

Social TV (STV) is the convergence between social media and TV, which has increased viewers' connectivity and content engagement via social media interactions (Proulx and Shepatin, 2012). Social media provides backchannels to empower audiences for two-way interactivity during video viewing (Lin and Chiang, 2017). The affordances of social media allow users to connect with others beyond connected social groups or nearby locations (Ariel and Avidar, 2015). Twitter discussions about TV programs and their sponsors are able to garner large audiences and trigger desirable actions related to TV viewing such as improved ratings (Nagy and Midha, 2014). According to Quintas-Froufe and Gonzalez-Neira (2014), STV interactions generate a social audience, a fragmentation of TV audiences discussing video content on social media; these exchanges create social media communities about programs can foster viewer loyalty and show longevity. Nagy and Midha (2014, p.448) categorized these "earned audiences" into active viewers (responding to TV programs or advertising via social media) and passive viewers (exposing themselves to online conversations). The majority of STV viewers tweeted to maintain community connectivity (Mouton, 2014). Realizing the importance of participatory viewership, TV producers and advertisers make increasing efforts to encourage users' sharing of TV-related content on social media and forming of fan communities (Highfield et al., 2013) to influence users' content selection and viewing habits.

Multiscreen videos and new TV-like services that shape audiences' cross-platform viewing behaviors have been flourishing in

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recent years (Lin, 2019). To reflect the latest audiovisual ecosystem, this study defines STV as using social media platforms (e.g., Twitter, Facebook, and mobile instant messages or applications) to discuss conventional TV programs or professionally made online videos (e.g., Netflix and YouTube channels). Apart from the audiovisual industry's attention to STV, several scholars have examined various factors (e.g., innovation characteristics and personal traits) affecting attitudes of STV users (Shin, 2013). Social affordances are salient predictors for users' acceptance and intention to use STV (Shin and Kim, 2015; Shin, 2017). Past STV system studies found that perceived sociability could enhance user participation and support social interaction (Chorianopoulos and Lekakos, 2008; Geerts and Grooff, 2009), while recent research identified perceived social presence as a key factor affecting viewers' commitment and loyalty of using social media for discussing TV channels (Hwang and Lim, 2015). Social exchange crucially determines intention to use STV applications (Krämer et al., 2015). Given that STV users, regardless of geographical or socioeconomic proximity, tend to exchange video-related opinions with others via Twitter or Facebook, they are likely to experience bridging social capital, which results from the use of social media in reaching out to weak-ties and obtaining informational varieties through heterogeneous networks (Ellison et al., 2007).

Scholars in western countries have extensively scrutinized the impacts of STV for a number of years, after the TV industry discovered how social media interactions (e.g., Twitter and Facebook discussions) could boost TV ratings and improve user engagement. However, this important topic has been relatively overlooked in Asian context till 2015. This present study was the first in Singapore. To the best of our knowledge, scholarly effort has scarcely focused on the relationship between social affordances of STV and social capital. None has regarded social capital as a mediator shaping STV users' viewing outcomes. Additionally, past STV studies did not focus on investigating STV users viewing professionally made videos (e.g., broadcasters, Cable TV, Internet TV, mobile TV, or OTT videos) while using social media sites (e.g., Facebook, Twitter, or Whatsapp). Accordingly, this study constructed a theoretical framework to analyze a national web survey dataset with two-fold research purposes to fill the gaps: First, it investigates the associations between STV's social affordances (e.g., sociability and social presence) and bridging social capital. Second, the framework also studies the relationship of STV's social affordances and bridging social capital with STV viewer loyalty and program commitment, two crucial concepts in marketing communication for the improvement of viewership and audience engagement. The findings will remain valid because using STV gains increasing popularity over the past few years and will capture the interest of academics and media practitioners. On the one hand, this study untangles the complex interrelationship of social constructs associated with users' perceptions of STV and their effects on viewers' loyalty to professionally made videos. The findings extend both Social Capital Theory and Social Presence Theory. On the other hand, the users' insights will shed light to the significance of social affordances in creating, promoting, and distributing multiscreen video contents and services, which will assist video operators and advertisers in engaging numerous social audiences and making strategies to increase viewer loyalty to cultural products or brands.

Using a roadmap of what is to come next, the following literature review section elaborates on previous research related to this STV study's key variables (sociability, social presence, bridging social capital, commitment, and program loyalty) and proposes empirically testable hypotheses. The third section describes the web survey's data collection, and specifies measurements and data analysis. The fourth section presents the results of the Structural Equation Modelling (SEM) and mediation analysis. The final section concludes and discusses salient findings, as well as states implications and limitations.

2. Literature review

When MIT Technology Review selected STV as one of the breakthrough emerging technologies in 2010, it referred to an integrated system for shared TV experiences (Chorianopoulos and Lekakos, 2008). After the fast diffusion of social media, STV was later transformed into a convergent augmentation of using Twitter or Facebook while video viewing, which gained increasing attention from industry players and academia (Hwang and Lim, 2015; Krämer et al., 2015; Lin and Chiang, 2017; Proulx and Shepatin, 2012; Shin, 2013). Many studies in western countries investigated user responses when live TV programs employed Twitter as a real-time backchannel to engage audiences (Lim et al., 2015; Mouton, 2014). These studies analyzed social audience's communication activities such as posting, commenting, sharing, and reading others' video-related social media conversations. Due to the prevalent multi-screen video consumption, STV in this study refers to the use of various social media (e.g., Facebook, Twitter, Whatsapp, and TV apps) for watching professionally made videos regardless of platforms (e.g., broadcasters, web, or mobile).

2.1. Perceived sociability

As a concept widely discussed in computer mediated communication (CMC) literature, sociability has been commonly defined as technical structures and social policies that support the virtual community's shared purposes and online social interactions among members (Preece, 2001). Several studies argued that user perspectives were critical to measure sociability (Gao et al., 2010; Shin, 2013). Junglas et al. (2013) found that perceived sociability could affect user appreciation and enjoyment toward technological use. In the context of STV, Shin and Kim (2015) defined sociability as users' perceived characteristics of the technology-mediated communication environment that supported a state of being sociable and pleasant in interacting with others. This study regards perceived sociability as the inclusion of technological aspects and user experiences. STV interactions that enhance users' parasocial experiences improve users' perceived sociability of STV (Shin, 2016).

Users perceived high levels of usefulness and enjoyment toward STV use with increased sociability of STV (Shin and Kim, 2015). Shin (2013) also found that perceived sociability of STV was positively associated with perceived ease of use and usefulness, which positively affected attitude toward STV and use intention. Improving perceived sociability of using social media for video viewing has become an important goal for multiscreen content producers to increase viewership (Lim et al., 2015) and social engagement, which

is a new assessment of video performance (Nagy and Midha, 2014).

2.2. Perceived social presence

According to Short et al. (1976), Social Presence Theory denotes the ability to transmit social cues via communication media. This theory provides a foundation for understanding user interactions via CMC systems (Shen and Khalifa, 2018). Later, the theory also applies to the virtual feelings of togetherness through screen devices, which then explains user responses to social cues with community members (Shen et al., 2010).

In CMC research, social presence is regarded as a psychological variable reflecting the subjective experiences of closeness and connectedness in mediated communications (Biocca, 1997; Heeter, 1992) Biocca and Harms (2002) described social presence of online media as the moment-by-moment awareness of the co-presence of other beings accompanied by a sense of engagement. Similar to feelings of telepresence (Kim and Biocca, 1997), social presence was identified as a key predictor that influences user experiences in distributed group environments (Rogers and Lea, 2005), while simultaneously shaping user attitudes toward socially interactive robots (Shin and Choo, 2011). The feelings of togetherness between geographically dispersed users can be facilitated when user interactivity is mediated by a technological platform with immersive affordances (Shin, 2017).

Adapting measures from Hwang and Lim (2015), this STV study defines social presence as the extent a medium facilitates the experience of being psychologically present with others and the perceptual illusion of non-mediation. Establishing online communities with shared video interests via social media cues was believed to generate feelings of telepresence (Hwang and Lim, 2015; Kim and Sundar, 2014). STV users can develop feelings of virtual togetherness by engaging in social media conversations while viewing videos. A past study found that perceived social presence of 3DTV had a positive effect on perceived enjoyment and user acceptance behaviors (Shin et al., 2011). Social presence was also a crucial factor for adopting a multiscreen STV system (Lin, 2019) and a positive predictor of dual screening use, a popular type of STV (Lin and Chiang, 2017).

2.3. Bridging social capital

Social Capital Theory is built upon the premise that investment in social relations generates expected return in the marketplace (Lin, 2003). Social capital is conceptualized as “the resources embedded in social networks accessed and used by actors for actions” (Lin, 2003, p. 25). Research in social networks has emphasized the significance of bridges in networks (Granovetter, 1973) by using information flows among people with strong and weak connections. This study focuses on examining how social capital is related to STV users’ commitment and program loyalty, in addition to understanding its relationship with STV’s key social components (perceived sociability and social presence).

Due to low entry barriers and affordances, social media can increase the size of social networks (Brandtzæg, 2010; Ellison et al., 2007; Räsänen and Kouvo, 2007) and maintain online relationships by developing social capital (Lee and Kim, 2014; Steinfield et al., 2008). According to Putnam (2000), bridging social capital is one type of individual-level social capital that occurs when loose connections provide each other information, emotional support and resources. As social networking sites (SNS) augment one’s bridging social capital (Donath and Boyd, 2004), several studies have found positive associations between bridging social capital and Facebook intensity (i.e. users’ time spent on Facebook activities and emotional attachment) (Ellison et al., 2007; Steinfield et al., 2008; Greenhow and Burton, 2011). Active Facebook users tend to exhibit high bridging social capital (Ellison et al., 2011; Johnston et al., 2013). Perceived bridging social capital also significantly influences SNS users’ satisfaction and continuous use (Chang and Zhu, 2012).

When using social media during video viewing, social audiences engage in online conversations within communities where weak-tie netizens discuss favorite videos. Bridging social capital resulted from social media participation (Pinho and Soares, 2015). Past STV research also pointed out that many users exploited affordances of social media to interact with like-minded weak-ties rather than with existing networks (Guo and Chan-Olmsted, 2015). Through such online interactions, STV users are likely to develop bridging social capital among acquaintances or strangers in virtual communities via such interactions. Moreover, Lin and Chiang (2017) found that bridging social capital was a positive predictor to dual screening use.

2.4. Program commitment

Commitment has been exhaustively studied in organizational and marketing literature (Fullerton, 2003; Tellefsena and Thomas, 2005). According to Morgan and Hunt (1994), commitment refers to individual belief that an ongoing relationship is crucial to warrant maximum efforts to maintain it. Two types of loyalty are categorized based on different motivations: calculative commitment (i.e., consumers’ economic considerations for continuous use after recognizing a lack of choices or a high switching cost) and affective commitment (i.e., psychological or emotional attachment, or identification toward a brand or supplier) (Allen and Meyer, 1990; Gustafsson et al., 2005). However, Chen and Hitt (2002) argued that instrumental costs are less likely considered in decisions to continue or discontinue the use of online services.

In the context of the STV, consumers’ investment and switching costs tend to be low, resulting from the easy and free access to social media platforms when discussing videos. Comparatively, affective commitment that improves brands’ user satisfaction and customer retention (Gustafsson et al., 2005) are relatively likely to be significant to STV usage, because participatory viewership with social media discussions benefits community connectivity, emotional responses, and social exchanges (Krämer et al., 2015; Mouton, 2014).

2.5. Program loyalty

Viewer loyalty is a key factor affecting commercials, advertising revenues, and profits (Stipp and Donsbach, 2008; Webster et al., 2000). Early TV research primarily examined a program's average rating or repeated viewing as the measure of program loyalty (Brosius et al., 1992; Lewin et al., 2015). However, many criticized that investigating repeating purchase behaviors was insufficient to measure brand loyalty (Yoshida et al., 2013). A multi-dimensional scale of brand loyalty developed by Lau and Lee (1999) identifies five dimensions of loyalty outcomes, namely, intent to repatronize, propensity to switch, willingness to pay more, external response to a problem (negative word-of-mouth), and positive word of mouth.

Given that many TV shows and videos can now be consumed on multiple screens, viewer loyalty in this study focused on professionally made audiovisual content, regardless of their primary platform of distribution (e.g., terrestrial or cable networks, internet or mobile). Repeated viewing is considered one of the key attributes of program loyalty (Oliver, 1999). Lim et al. (2015) examined behavioral and attitudinal aspects of audience's commitment to TV channels, including intention to continue viewing despite situational differences and recommendation intention. Adapting Lim et al. (2015) measures, this study defines program loyalty as the likelihood that a viewer intends to continue viewing audiovisual content (professionally created videos) and engage in video-related social media activities (e.g., discussing, sharing, commenting, or recommending videos). STV program loyalty involves behavioral and attitudinal aspects of using social media for video viewing.

2.6. Hypotheses

Using social media (e.g., Twitter and Facebook) for viewers' communication and interactivity while watching videos facilitate social interactions (sociability) among netizens with similar video interests. Such STV activities can develop virtual communities and feelings of co-viewing with others at a distance (social presence). Virtual co-viewing experiences with social media interactivity tend to develop a sense of STV community with feelings of telepresence (Kim and Sundar, 2014). Lin's study on multiscreen STV system research (in press) also found that the majority of participants agreed that sociability features could facilitate users' perceived social presence. Hence, we hypothesized the following:

H1a: Perceived sociability of STV is positively related to perceived social presence.

As bridging social capital is derived from social media participation (Pinho and Soares, 2015), STV users discussing video-related issues via social media possibly develop bridging social capital among online weak-ties. Lin and Chiang (2017) examined dual screening, a type of STV, and its relationships with perceived sociability, social presence, and bridging social capital. Their results showed that both perceived sociability and social presence increased bridging social capital, which positively predicted usage. Because STV utilizes social media features (sociability) to interact with weak-ties, these like-minded video consumers are likely to increase bridging social capital. Thus we proposed the hypothesis:

H1b: Perceived sociability of STV is positively related to bridging social capital.

Shin and Kim (2015) further demonstrated that perceived sociability not only positively influenced the intention to use STV, but also moderated the relationship between users' attitude and intention to use. Past studies support program commitment as a type of positive attitude (Hwang and Lim, 2015) and consumers' continued intent as an indication of loyalty (Oliver, 1999). Perceived sociability tends to increase both constructs in the context of STV. Based on aforementioned studies, we proposed the following hypotheses:

H1c: Perceived sociability of STV is positively related to program commitment.

H1d: Perceived sociability of STV is positively related to program loyalty.

Oztok et al. (2015) found a positive relationship between social presence and bridging social capital in online learning environments. STV users utilize social media to interact with content producers and other viewers, which then facilitates social presence (Shin, 2013) and improves user engagement (Nagy and Midha, 2014). Lin and Chiang (2017) also found that bridging social capital with online weak-ties is positively associated with the use of dual screening, a type of STV. Hence, we hypothesize that:

H2a: Perceived social presence of STV is positively related to bridging social capital.

Past CMC studies found that feelings of social presence tend to increase the commitment of online communities (Dabbish et al., 2012). Social presence of using social media discussions while watching live sports TV channels was found to improve viewers' commitment (Hwang and Lim, 2015). According to Lim et al. (2015), the enhanced feelings of social presence increased viewers' affective commitment to using social media for video viewing (STV). Lin and Chiang (2017) found that social presence which increased dual screeners' bridging social capital could positively predict their usage. As such, STV users are likely to increase affective commitment to professionally made video content through social interactions with other viewers, and thus we hypothesize:

H2b: Perceived social presence of STV is positively related to program commitment.

Perceived social presence of STV that affects viewers' perceived ease of use and usefulness is positively related to the users' attitude and intention to use (Shin, 2013). When STV social interactions generate feelings of social presence, audiences' attitudes tend to improve toward the new media, thereby increasing program loyalty by repeating video viewing or continuous social media use for posting, commenting, or sharing video-related contents. Lim et al. (2015) found that STV's social presence could predict channel loyalty mediated by channel commitment. Hence, the following hypothesis is developed:

H2c: Perceived social presence of STV is positively related to program loyalty.

This study is one of the first to investigate the relationship between STV's bridging social capital, and program commitment and loyalty. Wang and Chiang (2009) discovered that social capital influenced the continuous use intention of online auctions. Past research found that high social capital generated by participating in online communities was associated with increased commitment and the ability to mobilize collective actions (Yao et al., 2015). Additionally, bridging social capital has been found to positively affect user satisfaction of social media and continuous use intention (Chang and Zhu, 2012). Although prior research has not examined the association between bridging social capital and loyalty, the aforementioned literature supports the capacity of social media use for professionally made videos can develop bridging social capital, which is likely to improve users' affective committed feelings and increase repeated viewing or continuous use. Thus, we hypothesize that:

H3a: Bridging social capital by using STV is positively related to program commitment.

H3b: Bridging social capital by using STV is positively related to program loyalty.

Dick and Basu (1994) posited that the strong affective commitment lowered the difficulties in customer relationship, resulting in continued patronage or recommendations to others. Many studies corroborated the positive relationship between affective commitment and program loyalty in online or social media (Richard and Zhang, 2012; Sashi, 2012). Hwang and Lim (2015) found that STV's affective commitment had a positive effect on program loyalty. According to Lin et al. (2016), commitment that mediates STV viewers' tendencies to continue viewer-program relationships likely increases program loyalty. Also, the relationship between STV usage and network loyalty was found to be partially mediated by program commitment (Lin et al., 2018). Hence, this study focuses on examining professional video viewing as the program type and proposes the following:

H4: Program commitment increases program loyalty to STV.

Fig. 1 shows the proposed research model integrating the aforementioned hypotheses.

3. Method

3.1. Data collection and respondent profile

Singapore, which ranked top of the World Economic Forum's Networked Readiness Index, is regarded as one of the digital

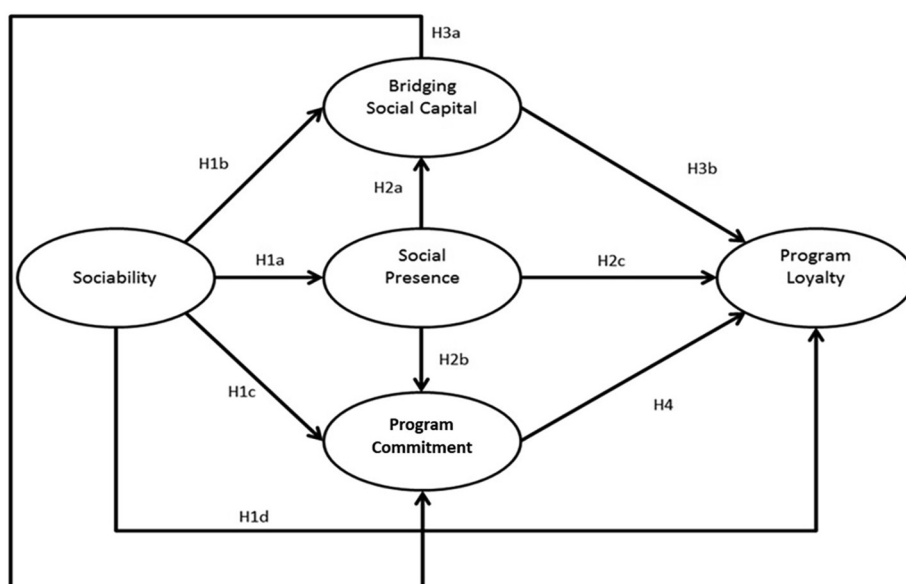


Fig. 1. Research model.

Table 1
Respondents' demographic profile ($N = 600$).

Category		Frequency	Percentage
Gender	Male	299	49.8
	Female	301	50.2
Age	18–24	93	15.5
	25–34	223	37.2
	35–44	145	24.2
	45–54	95	15.8
	55–64	41	6.8
	65 and above	3	0.5
Ethnicity	Chinese	504	84.0
	Malay	45	7.5
	Indian	31	5.2
	Others	20	3.3
Educational Attainment	No formal education	2	0.3
	Primary level	5	0.8
	Secondary level	69	11.5
	Junior college	34	5.7
	Polytechnic/diploma	155	25.8
	College/university undergraduate	280	46.7
	Postgraduate (Masters and doctorate)	55	9.2
Monthly Income	Dependent/No income	55	9.2
	\$1000 and below	27	4.5
	\$1001 – \$3000	147	24.5
	\$3001 – \$5000	186	31.0
	\$5001 – \$7000	94	15.7
	\$7001 – \$9000	38	6.3
	\$9001 – \$10,000	22	3.7
	\$10,001 and above	31	5.2

advanced countries (DNA, 2017). According to hashmeta, Singapore has 85% social media penetration rate in 2019 and 70% of Singaporeans are active social media users (Nhu, 2018). The same report shows that YouTube is the most viewed social media platform, with four million users in the country. Under conservative traditional media under tight content regulation, lots of Singaporeans consume online and mobile information and videos, owing to the light-touch regulation and diverse content (Lin, 2013). Using social media for multiscreen video viewing has become a growing trend in Singapore (Lin, in press).

A nationally representative web survey was conducted among Singaporean citizens and permanent residents in October 2015. A professional company collected the web survey data from cyber panels following demographic profile (i.e., age and gender) of the 2015 social media users in Singapore based on the [comScore Media Matrix \(2015\)](#). To examine STV active users, we set the criteria to recruit those who were 18 years old and above with prior experiences in using social media before, during, and after watching professionally made videos. The English survey was pre-tested with 25 undergraduate students with past STV experiences. The research design was approved for deployment by a Singaporean university's institutional review board. After data cleaning, the final number of valid respondents was 600. This number exceeds the minimum sample size of 387 that obtains a power level of 80% for SEM analysis (Westland, 2010). Table 1 summarizes the respondents' demographic profile.

3.2. Measurement

All items in this study were adapted from past studies and measured by a 7-point Likert scale, ranging from 1 “strongly disagree” to 7 “strongly agree”.

Sociability ($M = 4.44$, $SD = 1.21$). Sociability was measured using items adopted from [Shin \(2013\)](#). The items include “I consider Social TV as a place to find pleasant conversations,” “I find Social TV pleasant to interact with,” and “I can meet and socialize with people through Social TV.” The overall reliability of the items is good (Cronbach's alpha = 0.89).

Social presence ($M = 4.12$, $SD = 1.29$). Social presence was measured using three items adapted from [Hwang and Lim \(2015\)](#). The items include “I feel like I was physically communicating with others when using Social TV,” “I feel like I was watching videos with friends when using Social TV,” and “I feel like many people were watching videos with me at the same time when using Social TV.” The sets of items show excellent reliability (Cronbach's alpha = 0.92).

Bridging social capital ($M = 4.35$, $SD = 1.26$). Bridging social capital was measured by six items adapted from [Ellison et al. \(2007\)](#). The items include “I feel I am part of the Social TV community,” “Interacting with people via Social TV makes me want to try new things,” and “Interacting with other Social TV users makes me feel like a part of a larger community,” and so on. Item 6 (“Interacting with other Social TV users reminds me that everyone in the world is connected.”) was removed due to poor factor loading (< 0.60). The reliability of the remaining five items is excellent (Cronbach's alpha = 0.93).

Program commitment ($M = 4.01$, $SD = 1.29$). Commitment was measured by three items adapted from [Lim et al. \(2015\)](#). The items

Table 2

Mean, validity and reliability of constructs.

Construct	α	CR	AVE	1	2	3	4	5
1. Perceived sociability	0.89	0.93	0.83	0.91				
2. Perceived social presence	0.92	0.95	0.86	0.67	0.93			
3. Bridging social capital	0.93	0.95	0.79	0.63	0.67	0.89		
4. Program commitment	0.94	0.96	0.89	0.52	0.58	0.73	0.97	
5. Program loyalty	0.86	0.90	0.65	0.57	0.60	0.76	0.74	0.81

Notes: M = mean. α = Cronbach's alpha. CR = composite reliability. AVE = average variance extracted. Diagonal elements in bold are results of the square root of AVE and should exceed the inter-construct correlations to establish discriminant validity.

include “After using social media for my favorite TV shows/videos, I am emotionally attached to them” and “After using social media for my favorite TV shows/videos, I am emotionally committed to them.” The overall reliability of the items is excellent (Cronbach's alpha = 0.94).

Program loyalty ($M = 4.18$, $SD = 1.37$). A five-item measure from Lau and Lee (1999) was adapted to examine program loyalty. They include “I intend to continue watching my favorite TV show/video that is discussed by others on social media,” “If someone makes a negative comment on my favorite TV show/video, I would defend it on social media,” and “I will use social media to recommend my favorite TV show/video to others who cannot decide what to watch.” The overall reliability of the items is good (Cronbach's alpha = 0.86).

3.3. Measurement model

A confirmatory factor analysis (CFA) was performed to assess whether the data represented the proposed factor structure. All retained items were loaded in their respective factors with an acceptable fit: $\chi^2/df = 1.82$, RMSEA = 0.04, CFI = 0.98, TLI = 0.97, SRMR = 0.04 (Hu and Bentler, 1999). The values for Cronbach's alpha ($\alpha > 0.70$), composite reliability ($CR > 0.70$), and average variance extracted ($AVE > 0.50$) for each construct indicate adequate internal consistency and convergent validity (Table 2). Furthermore, the square root of the AVE for each construct is greater than the inter-construct correlations between them, which indicates discriminant validity (Fornell and Larcker, 1981).

3.4. Data analysis

SPSS 21 was used to perform descriptive analyses (e.g. frequencies, means). Next, values for the validity and reliability of the constructs were computed using Smart PLS 2.0 M3. Finally, CFA, SEM, and mediation analysis were performed using Mplus 7.

4. Results

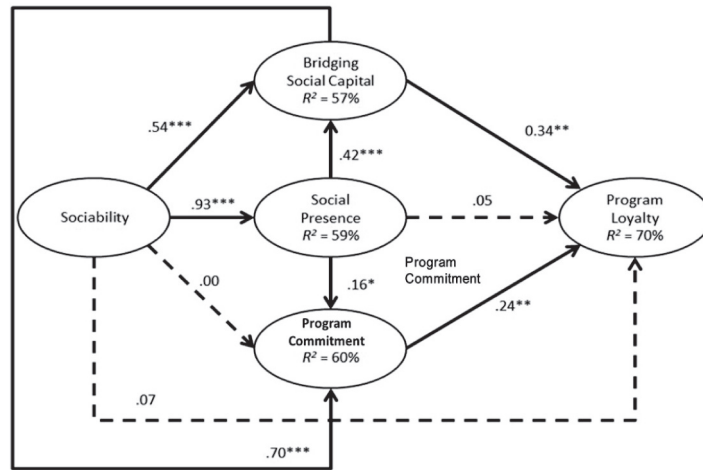
4.1. Descriptive findings

In general, the respondents spent an average of 10.62 hours ($SD = 14.20$) on using social media for video-related matters on a weekly basis. They primarily used mobile instant messaging applications (e.g. WhatsApp, WeChat, and Line) ($M = 3.92 / 5$, $SD = 0.95$) and SNS (e.g. Facebook, Twitter, and Instagram) ($M = 3.52 / 5$, $SD = 1.05$) to discuss with others during video viewing. Respondents' social media interactions during video viewing occurred most frequently when they watched news ($M = 3.28 / 5$, $SD = 1.00$), followed by drama ($M = 3.13 / 5$, $SD = 1.04$), and reality shows ($M = 2.99 / 5$, $SD = 1.04$).

4.2. Hypothesis testing

SEM was used to test the hypotheses. This proposed research model has an acceptable fit: $\chi^2/df = 2.78$, RMSEA = 0.05, CFI = 0.96, TLI = 0.95, SRMR = 0.06 (Hu and Bentler, 1999). Fig. 2 shows the structure of the research model with unstandardized coefficients on each path. Unstandardized coefficients were derived from 5000 bootstrap samples, following the recommendations of Preacher and Hayes (2008). Results were controlled for the effects of age, gender, ethnicity, monthly income, and educational attainment.

In Fig. 2, perceived sociability of STV was positively related to perceived social presence ($b = 0.93$, $p < .001$) and bridging social capital ($b = 0.54$, $p < .001$), but not to program commitment and program loyalty. H1a and H1b were accepted, whereas H1c and H1d were rejected. Next, perceived social presence was positively related to bridging social capital ($b = 0.42$, $p < .001$) and program commitment ($b = 0.16$, $p < .05$), indicating that H2a and H2b were accepted. However, H2c was rejected as perceived social presence was unrelated to program loyalty. In addition, bridging social capital was found to be positively related to program commitment ($b = 0.70$, $p < .001$) and program loyalty ($b = 0.34$, $p < .001$). Thus H3a and H3b were accepted. Finally, considering that commitment was positively related to program loyalty ($b = 0.24$, $p < .001$), H4 was accepted. This research model also accounted 74% variance of program loyalty. Table 3 provides a summary of hypothesis testing results.



Notes: $\chi^2/df = 2.78$, RMSEA = .05, CFI = .96, TLI = .95, SRMR = .06. * $p < .05$, *** $p < .001$. Dashed lines indicate non-significant paths. Control variables (i.e. age, gender, ethnicity, monthly income, educational attainment) were included in the analysis but not shown in the figure. None of the control variables were significant.

Fig. 2. Results of SEM analysis. Notes: $\chi^2/df = 2.78$, RMSEA = 0.05, CFI = 0.96, TLI = 0.95, SRMR = 0.06. * $p < .05$, *** $p < .001$. Dashed lines indicate non-significant paths. Control variables (i.e. age, gender, ethnicity, monthly income, educational attainment) were included in the analysis but not shown in the figure. None of the control variables were significant.

Table 3
Summary of hypothesis testing.

Hypothesis		b [*]	Decision
H1a	Perceived sociability is positively related to perceived social presence	0.93***	Accept
H1b	Perceived sociability is positively related to bridging social capital	0.54***	Accept
H1c	Perceived sociability is positively related to program commitment	0.00	Reject
H1d	Perceived sociability is positively related to program loyalty	0.07	Reject
H2a	Perceived social presence is positively related to bridging social capital	0.42***	Accept
H2b	Perceived social presence is positively related to program commitment	0.16*	Accept
H2c	Perceived social presence is positively related to program loyalty	0.05	Reject
H3a	Bridging social capital is positively related to program commitment	0.70***	Accept
H3b	Bridging social capital is positively related to program loyalty	0.34***	Accept
H4	Program commitment is positively related to program loyalty	0.24***	Accept

Notes: ^{*} unstandardized regression coefficient derived from 5000 bootstrap samples. * $p < .05$, *** $p < .001$.

4.3. Mediation analysis

As past research shows positive relationships between STV's social constructs (e.g., social presence) and program loyalty, this study aims to discover what factors mediate the associations between perceived sociability of STV and program loyalty. Mediation analysis was conducted by obtaining total, direct, and indirect effect values after performing a 5000 bootstrap sampling. The analysis showed that perceived sociability, without mediators, had a significant positive total effect on program loyalty (total effect = 0.60, $p < .001$). However, after adding perceived social presence, bridging social capital, and program commitment as mediators, the direct effect between perceived sociability and program loyalty was no longer significant (direct effect = 0.07, $p > .05$), indicating full mediation. Additionally, 88% of the total effect of perceived sociability of STV on program loyalty was accounted by its overall indirect effect ($b = 0.53$, $p < .001$).

Table 4 shows seven paths in which sociability may have an indirect effect on program loyalty. Among the five statistically significant paths, four included bridging social capital and three had social presence in indirect paths. The highest indirect effect of perceived sociability on program loyalty could be achieved by bridging social capital as the immediate mediator (indirect effect = 0.20, $p < .01$); however, social presence as the immediate mediator showed no significance. The second highest indirect effect occurred when social presence and bridging social capital mediated the effect of perceived sociability on program loyalty (indirect effect = 0.14, $p < .001$). Most importantly, bridging social capital is suggested to be a substantial mediator as it has a strong influence among indirect effects of perceived sociability on program loyalty.

5. Discussion and conclusion

As emerging STV phenomenon has a steady but gradual growth in Singapore, this study pioneers the investigation on the

Table 4

Summary indirect paths from sociability to loyalty.

Indirect paths		Indirect effect
1	Sociability → social presence → program loyalty	0.02
2	Sociability → program commitment → program loyalty	0.00
3	Sociability → bridging social capital → program loyalty	0.20**
4	Sociability → social presence → program commitment → program loyalty	0.04*
5	Sociability → bridging social capital → program commitment → program loyalty	0.10**
6	Sociability → social presence → bridging social capital → program loyalty	0.14***
7	Sociability → social presence → bridging social capital → program commitment → program loyalty	0.07**

Notes: ^ unstandardized regression coefficient derived from 5000 bootstrap samples. * $p < .05$, ** $p < .01$, *** $p < .001$.

relationships and mediation effects among STV social affordances (i.e. bridging social capital, social presence, and perceived sociability), program commitment and loyalty. The national web survey focuses on examining STV users with prior experiences in using social media while viewing professionally made multiscreen videos (e.g., broadcasters, Cable TV, and OTT). This research model that consists of key STV-related social constructs demonstrates a good explanatory power to account for 70% variance of program loyalty. Notably, this study is the first to identify bridging social capital as a crucial social construct of STV program loyalty. The results highlight that bridging social capital can serve as a mediator, and a stronger STV predictor than perceived sociability and social presence to STV commitment and program loyalty. Instead of treating sociability and social presence as paralleled predictors in past STV studies (Lin and Chiang, 2017; Lin, 2019; Shin, 2013), this study confirms sociability's positive effects on both social presence and bridging social capital. Compared with sociability, social presence has a greater predicting power to STV's program commitment and loyalty. Similar to past studies in marketing and branding (Fullerton, 2003; Morgan and Hunt, 1994; Tellefsena and Thomas, 2005), this study finds that commitment, or users' beliefs in maintaining STV viewing and social discussions, has a positive effect on program loyalty, the likelihood to remain faithful to STV activities, as well as defense or recommendations to others. Hence, the study unravels the interrelationship of users' perceived social constructs regarding STV, and their influences on viewers' affective attachment and continuous use of professionally made multiscreen videos.

5.1. Bridging social capital as a crucial predictor to STV program loyalty

This study finds the influential effect of bridging social capital on STV program loyalty that has been overlooked by past scholarly research. STV viewers utilize social media as interactive backchannels to discuss videos' plots, characters, or topics with like-minded weak-ties and experience virtual co-viewing in their communities, which improves their repeated viewing and continuous use intention. In the multiscreen video environment, a myriad of professionally made videos across platforms compete for viewers' attention, and thus video operators have growing difficulties in appealing to fragmented audiences. Although close ties may not have similar video preferences and loyalty, STV users connect with heterogeneous netizens and interact with one another for shared interests in audiovisual content. Such bridging social capital generated and sustained by video affinity is task-oriented and topical. Fandom and participatory culture also increase the importance of bridging social capital in the context of STV. The affective, asynchronous social media communication with fan communities can improve users' loyalty to favorite videos.

5.2. Social presence predicts bridging social capital and STV commitment

In this study, perceived social presence of STV has positive associations with bridging social capital and program commitment. STV users may experience socially desirable hyperpersonal communication (Walther, 1996), because they can send messages with strategically optimized online self-presentation and feel greater levels of intimacy, unity and liking within online communities or dyads than ordinary face-to-face communication. STV develops and maintains hyperpersonal relationships with weak-ties and their social media interactions create users' virtual feelings of togetherness. Perceived social presence of STV is positively related to bridging social capital. When STV users feel psychologically co-present with other netizens without mediation, the virtual existence of other video fans and sense of community facilitate the development of bridging social capital with heterogeneous weak ties. Asynchronous STV communication allows users to read, create, share, and distribute video-related messages and expect others to reciprocate feedback. As hyperpersonal communication can promote affinity with other CMC users (Walther, 1996), perceived social presence is likely to increase affective psychological responses to STV such as commitment. Similar to Lim et al.'s study on social media use while viewing live sports channels (2015), this study finds that perceived social presence of STV increases program commitment of professionally made videos, regardless of platforms (e.g., broadcasters, Cable TV and OTT). That is, perceived social presence enhances STV users' affective attachment and liking to the videos being viewed and discussed on social media.

However, such virtual co-viewing feelings (social presence) shows no significant effect on program loyalty, an attitudinal and behavioral construct that includes continuous viewing, recommending videos to others, and defending against negative comments. That is, although STV users perceive others as viewing and discussing videos together, these feelings have no significant impact on users' loyal attitude toward continuous viewing and promoting videos. Moreover, the mediation analysis shows that social presence and bridging social capital mediated the effect of perceived sociability to program loyalty. If STV users perceive social presence as beneficial to develop virtual communities and build relationships and exchange social value with like-minded weak ties, their loyalty

will be improved by continuously viewing programs and discussing them on social media.

5.3. *Perceived sociability as an antecedent to social presence and bridging social capital*

Perceived sociability in this study refers to a digital place to meet and socialize with people for pleasant conversations and interactions. One key finding of this study is to clarify the relationship between perceived sociability of STV and perceived social presence. Past STV research conceptualizes the two variables as paralleled predictors for STV's attitude and use intention (Shin, 2013) and usage (Lin and Chiang, 2017). However, perceived sociability of STV has a positive impact on perceived social presence. This provides an important empirical basis that sociability precedes social presence wherein STV viewers can experience feelings of virtual presence of other users. That is, people who think that social media features or platforms aid their enjoyable interactions with fans or STV users tend to experience virtual co-viewing with netizens and feel a sense of community. The findings highlight the precedent significance to develop features or strategies to stimulate viewers' STV perceptions as enjoyable and sociable media activities (perceived sociability), and thus they will be able to feel others' virtual existence (social presence) and engage in video-related conversations.

SEM results support perceived sociability as the predictor of bridging social capital in the context of STV. If people perceive that using social media while viewing professional videos can facilitate their joyful social interactions within STV communities, it will increase users' virtual co-viewing experiences (social presence) with weak-ties and form a sense of online community (i.e., bridging social capital). Although past studies identify perceived sociability as a key factor affecting STV attitude and use intention (Lin and Chiang, 2017; Shin, 2013); this study finds no effect on program commitment and loyalty, indicating its weak predicting power to STV viewing consequences. Only when bridging social capital is included as a mediator, the indirect effects of perceived sociability on program loyalty can be achieved. The absence of significant results on the direct relationships between perceived sociability and perceived social presence toward program loyalty can be explained by the strong mediating effect of bridging social capital on program loyalty.

5.4. *Implications and limitations*

This STV research pioneers to investigate using social media during video viewing in Singapore with theoretical and practical implications. Theoretically, this study was among the first to examine the predicting and mediating effects of bridging social capital on social constructs affecting program commitment and loyalty. Although past studies emphasize the impacts of perceived sociability and social presence on STV use, the present study pinpoints bridging social capital as an essential variable to increase loyalty to STV, which has been long overlooked in past literature. This study is the first to extend the application of Social Capital Theory to examine social values and connections in STV communication, particularly the significance of bridging social capital with weak-tie netizens sharing similar video interests. The findings support the positive effects of perceived bridging social capital on their program loyalty and commitment. The research model links Social Presence Theory with Social Capital Theory, as the results show a positive relationship between users' perceived social presence of STV and bridging social capital resulting from their STV use. In the context of STV, bridging social capital evidently has greater influence than social presence, followed by sociability. The findings provide novel insights to Social Presence Theory by identifying perceived sociability as the antecedent of social presence and by positioning bridging social capital as a mediator to improve STV viewing consequences. In addition, the study confirms the significance of making good use of social media's sociability and social presence capabilities in creating STV's backchannel interactivity, thereby enabling viewers to enhance video engagement via social interactions with online communities and increase bridging social capital.

In a practical sense, this study provides STV viewer insights for multiscreen content providers regarding the importance of fostering social affordances of video viewing, in order to improve program loyalty. Based on the results, industry stakeholders should make effort to utilize social media features in facilitating sociability and creating feelings of social presence, thus improving bridging social capital, which can effectively increase social audiences' program loyalty. Notably, creating interactivity for audiovisual services that feel enjoyable and sociable (perceived sociability) is fundamental to facilitate viewers' feelings of virtual co-viewing and form fan or video communities (social presence). Audiovisual operators are advised to develop user-friendly digital spaces to enable video-related interactions and utilize social marketing specialists to set the agenda for online discussions and improve programs' eWOMs. Most importantly, audiovisual operators should strategically design content to stimulate viewers' constant social interactions with weak-ties for the exchange of information and shared values (e.g., plot development and behind-the-scenes stories), in order to increase bridging social capital and program loyalty.

This present study has several limitations that can be improved by future research. To our best knowledge, no research project, except this present study, has conducted surveys about STV users in Singapore in recent years. Although using social media for video viewing gains growing popularity among multiscreen users, little progress has been made in STV innovation and developments. This research which has been conducted in late 2015 when TV producers have begun to utilize social media to engage audiences provide unique value, lasting meanings and theoretic contributions in terms of examining convergent STV user behaviors in Asia. Due to the tight-controlled media market in Singapore, the proposed research model on STV can be tested in other countries with different social and media systems. Additional survey research can further examine users' attitudes toward different kinds of STVs or toward specific content genres shown on STV. It will be interesting to test the influences of bonding social capital and bridging social capital on STV viewing consequences. Next, this study investigates active STV users with a sampling that fits Singapore's social media users' demographic profile. Although Singapore serves as a suitable context to examine STV program loyalty, the results from this digital savvy market can only be applicable to other connected Asian societies with sophisticated information and communication

technology infrastructure (DNA, 2017). Future studies can be conducted in less digitally-advanced countries or western contexts, compare result similarities and differences. Moreover, this study calls for longitudinal research design to account for time-order effects in developing program loyalty when considering the effects of social constructs, in order to improve one-shot survey's drawbacks. Finally, although SEM can test a complex research model that visualizes the structure of relationships among variables (Hu and Bentler, 1999), this statistical technique cannot indicate causality. In the future, experimental research design that tests the cause and effect of bridging social capital on program loyalty can be conducted to validate points raised in this study.

Declaration of Competing Interest

Author declares that there is no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tele.2019.05.006>.

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