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Abstract

Like companies strategically using social networking services (SNS) competitively, TV broadcasters have tried to adopt audience opinion synchronously (AOS) using SNS in their broadcasting content. However, few studies have investigated the effect of AOS characteristics on audience reactions. This study used the theory of justice to empirically validate the effect of AOS adoption on such elements of justice perceptions, content quality, trust, satisfaction, and on such audience reactions as continuous viewing, purchase, word-of-mouth, and reciprocal participation. We conducted a laboratory experiment that used three types of virtual broadcasting content (a summary of majority opinion in SNS, a summary of majority opinion in SNS and its detailed comments, and, third, two majority and minority opinion summaries in SNS and their detailed comments). Data were collected from 294 participants and analyzed by PLS algorithms. As a result, we found that the depth and breadth of the AOS in broadcasting content could significantly enhance audience reaction . This study introduced into the research arena the issue of the strategic usage of SNS by TV broadcasters and used the theory of justice, which represents the public role of TV broadcasters to gather the public opinions. Also, we conducted a methodologically rigorous approach to validate the effect of this SNS usage. We expect that the results of this study will have practical implications for companies trying to use SNS strategically to enrich their services.

Keywords: social network service, audience opinion adoption, the theory of justice, TV broadcaster

1 INTRODUCTION

The evolution of IT could facilitate the communicative action of social network services (SNS) users (Kim 2010) by connecting them with a broader range of friends (Kim et al. 2012). In February 2012, the number of SNS users exceeded 1.2 billion, which means half of the 2.2 billion Web users also use SNS (Bloter.net 2012). Companies use SNS strategically to advertise their products and also to communicate with consumers so as to develop more appealing products. In the United States in 2011, 80% of companies used SNS for marketing (eMarketer 2011). As examples, Starbucks (USA Today, 2009), Procter & Gamble, and Samsung Electronics (Vranica 2012) all have used SNS as a marketing channel and as a source of ideas for product development. In media, SNS have changed the TV broadcasting environment from its traditional one-way transmission of content to one of super-connectedness allowing not only interaction between broadcasters and their audiences but also between their audiences (Shirky, 2011). TV broadcasters (broadcasters) have tried to strategically use SNS even in their production of content. Broadcasters have not been content to adopt the opinions their audiences form after exposure to their content — they also have tried to incorporate audience opinion synchronously into their production of content. For example, BBC, Fox TV, and CNBC have used SNS in collecting and reporting news, refining its content, and in previewing and promoting it. In some cases, audience opinions gathered from SNS have even been incorporated into the news content.

However, despite these changes in the TV broadcasting environment, few studies have empirically investigated audience reactions to incorporation of opinions from SNS into broadcast content and what benefits, if any, these changes bring to broadcasters. Prior studies about SNS have focused for the most part on how consumers benefit from SNS usage (Barton 2010; Comm 2009; Jansen et al. 2009; Miller 2009). Only a few studies have been interested in how companies benefit from using SNS (Comm 2009). In broadcasting, a number of studies have examined the strategic usage of SNS as a rising new medium (Stefanone et al. 2010; Lewis et al. 2010) to challenge the weakening power of the traditional media (Ksiazek et al. 2011; Stefanone et al. 2010). These studies found that audience participation in the post-exposure stage could enhance audiences' consumption of content (Ksiazek et al. 2011), their satisfaction with it (Manero et al. 2013), and their perceptions of its value (Godlewski & Perse 2010). Few studies have empirically investigated the reaction of an audience and the beneficial consequences to broadcasters of synchronously adopting the opinions of an audience as part of a given content. Some studies have looked at the role of SNS from another perspective, arguing that the distribution of their content could be an important factor affecting the spread of democracy (Bennett & Entman 2011; Jenkins & Thorbum 2004), but few studies have assessed ways to enhance the public role of broadcasters to gather the public opinions and to adopt these opinions in their content.

This study has focused the effects of the synchronous adoption of audience opinions from SNS as a part of content (AOS). Based on the prior literature about audience participation and characteristics of information exchange, we have identified AOS in terms of its two characteristics of adoption depth and adoption breadth. We have adopted the theory of justice to explain the effect of AOS on perceptions of distributive, procedural, and interactional justice and on perceptions of the quality of content and of trust in broadcasters. By adopting the theory of justice, we could reflect the public role of broadcasters in fairly collecting the public opinions and forming public opinion. Then, we have accessed the effect of AOS on such benefits to broadcasters as continuous viewing, purchase, positive word-of-mouth, and reciprocal participation.

2 THEORITICAL BACKGROUND & HYPOTHESIS

2.1 Audience participation & characteristics of information exchange

The production of content through audience participation has evolved from the audience panel discussions in radio studios (i.e., "Town Meeting of the Air," NBC, 1935, Head 1976; Sterling & Kittross 1978) to synchronous audience telephone participation (Head 1976) to the audience-generated content

adopted in reality TV programs (i.e., "America's Funniest Home Videos" in 1990s, Griffen-Foley 2013). Despite these changes in the role of audiences, few studies have assessed the effect of audience participation. Most of the earlier studies have focused on the motives for content consumption (Papacharissi & Mendelson 2007) and media selection (Ksiazek et al. 2010). Recently, studies of reality TV programming have tried to identify the effect of audience participation for three reasons: first, reality TV programming could allow audience participation in the post-exposure stage by using Web technology (Godlewski & Perse 2010); second, an audience could serve with a broadcaster as a co-creator of content (Liu & Schrum 2002); and, third, audience participation has the potential to affect the reactions of other audiences (Tincknell & Raghuram 2002). Some studies have argued that audience participation could positively affect the experiences of other audiences via the identification process (Eyal & Rubin 2003). According to this reasoning, audiences form a psychologically strong relationship with a character(s) in the broadcast content, and identify with the character(s) (Cohen 2001). When audiences felt a similarity with characters, they were more apt to identify themselves with the characters (Eyal & Rubin 2003). When audiences were in this state of identification with a character, members of the audiences could be more involved in a given content, be more affected by behaviors of a character, enjoy the contents more, and then be more willing to consume the broadcast content (Godlewski & Perse 2010; Eyal & Rubin 2003; Ward & Rivadebeyra 1999). This perception of similarity between a character and an audience grows in the case of audience participation in broadcasting content. Such a perception could facilitate the identification process, and audiences could experience higher levels of involvement and satisfaction and increase their intent to consume broadcast content (Godlewski & Perse 2010; Aragon & Llorens 1996; Rhee et al. 2009; Lu & Lo 2007).

Information technology (IT) such as Web technology facilitates audience participation in broadcasting, and more empirical studies about the effect of the evolution of IT on audience reaction has been needed (Papacharissi, 2002, Griffen-Foley, 2013). IT facilitated the exchange of information in more effective ways between social transactors and is regarded as an efficient tool of social action (Teeni 2001). Because of advances in IT, SNS could facilitate detailed exchanges of information and diverse opinions synchronously between many unspecified persons (Kim & Choi 2012, Kim 2010). The literature identifies four characteristics of this information exchange: volume, diversity, depth, and breadth.(Massetti and Zmud, 1996). The depth of information represents how much knowledge is focused and pertinent in its content, and the breadth of information represents the diversity of knowledge across members (Ryu et al. 2005). Researchers have argued that these two characteristics are the salient characteristics in the knowledge acquisition process (Ryu et al. 2005). Because an audience could have exchanged its opinions with broadcasters, we decided to identify AOS by its two characteristic of depth and breadth.

2.2 The theory of justice

Broadcasters could contribute to the formation of public opinion by providing content that helps the practice of democracy (Bennett & Entman 2001; Jenkins & Thorbum 2004). The mass of SNS users could submit their opinions on SNS and the aggregated summary of these opinions would closely match public opinion in practice (O'Connor et al. 2010). We decided to use the theory of justice to explain the effect of AOS. The theory of justice conduct the issues of fairness in the social exchange. Among the other theories, this theory could be appropriate to explain the fair way of the public opinion formation, and the fairness would be essential to the the broadcasters in the formation of public opinion and a public consensus. The theory of justice explains the relationship between the perception of a transaction by a social transactor and his behavioral intentions when the transactor has been treated by a counterpart in a social exchange relationship (Cialdini 1993; Ambrose & Schminke 2009; Barsky & Kaplan 2007; Son & Kim 2008). When a transactor perceives an exchange relationship with a counterpart to be just (also called "being fair"), he or she can increase such positive behavioral intentions as involvement, satisfaction, and social norm adoption and decrease such negative behavioral intentions as withdrawal of intent to conduct the transaction (Barsky & Kaplan 2007; Son & Kim 2008; Martinez-Tur et al. 2006; Cohen-Charash & Spector 2001, for meta-analytic reviews). These effects

have been empirically validated in various social exchange situations, both with individuals as employees (McFarlin and Sweeney 1992) and as consumers (Bettencourt et al. 2005; Martinez-Tur et al. 2006), IS users (Son & Kim 2008) and with such organizational units as company transactions (Kumar et al. 1995). Most studies of the theory of justice identify three types of perceptions of justice — distributive, procedural, and interactional (Cropanzano et al. 2001, Martinez-Tur et al. 2006). Distributive justice refers to the extent to which a transactor perceives as fair the benefits he or she receives from counterpart B in an exchange, and it also means how a transactor justifies the inputs compared with the treated output (also called "equity," Adams 1965; Son & Kim 2008). Procedural justice refers to the extent to which a transactor perceives that his or her counterpart establishes procedures for the exchange (Martinez-Tur et al. 2006), and it means awareness of the procedures (Son & Kim 2008). Interactional justice refers to the extent to which a transactor perceives his or her counterpart as honest and trustworthy in complying with promises related to the exchange (Son & Kim 2008), and it means the reasonableness of treatment by the counterpart (Barsky & Kaplan 2007).

Although most earlier studies have focused on the outcomes of justice perceptions, a few studies have been identified that were concerned with the antecedents of justice perceptions (Barsky & Kaplan 2007). People acknowledge the stimuli that they were able to sense (Pavlou & Gefen 2004). When information system (IS) users could acknowledge the outcome of a transaction, they could control the consequences of the transaction (Kirsh 1997), and they could have a positive experience in the exchange of information (Nicolaou & McKnight 2006). When a transactor could acknowledge the equity and balance of the treatment he or she received from his or her counterpart, compared with the inputs of time and effort by the transactor, he or she could perceive the outcome to be fair. So, AOS makes audiences acknowledge that their input has value, and it enhances distributive justice. The more detailed and diverse opinions adopted into content, the greater the confirmation of distributive justice.

H1: The depth of AOS could enhance perceived distributive justice.

H2: The breadth of AOS could enhance perceived distributive justice.

Researchers have argued that the existence of a formal process for treatment (Rahim et al. 2000) and participation by a transactor (Alge 2001; Ambrose & Alber 2000; Bies & Shapiro 1988; Konovsky, 2001) could facilitate a transactor's perception of procedural justice. When a transactor could participate in the process of exchange, he or she could confirm control over the exchange process (Kirsh 1997) and form a more positive experience of the exchange. So, AOS makes audience acknowledge their ability to control the process of content production, and it enhances procedural justice. The more detailed and diverse opinions incorporated into the subsequent content means more participation in the production process, and this could cause audiences to consider the process fair.

H3: The depth of AOS could enhance perceived procedural justice.

H4: The breadth of AOS could enhance perceived procedural justice.

As for recognition of interactional justice, a transactor would have to acknowledge treatment by a counterpart as reasonable. Identification of interactional justice involves two perspectives, one being the attitude of the counterpart and the other the treatment received from the counterpart. The first is identified in interactional justice as closely related with the concept of trust, such as trustworthiness (Son & Kim 2008), empathy (Martinez-Tur et al. 2006), and kindness (Culnan & Bies 2003). The second is identified as the reasonableness of the policy and the attitude of the counterpart (Lim 2002). Trust could be regarded as an antecedent in some situations but also, in other situations, as a consequence or as a co-developing concept (Lewicki et al. 2005). According to some researchers, such various elements as personal traits and past experience could affect how treatment by a counterpart is judged (Barsky & Kaplan 2007) and thus interactional justice must be identified by being fitted to a specific situation. We decided to identify the interactional justice in the process of content production as differentiated by general trust of the broadcaster. When an audience recognizes AOS, its members could expect a broadcaster to create content impartially and consequently perceive interactional justice. The more detailed and diverse the opinions incorporated into content, the more it could be seen by

audience members as reflecting a strictly impartial stance by a broadcaster and could cause audiences to confirm the fairness of its interaction with this broadcaster.

H5: The depth of AOS could enhance perceived interactional justice.

H6: The breadth of AOS could enhance perceived interactional justice.

Acknowledgment of the fairness of output, procedure, and interaction could affect how a counterpart is judged and the quality of the perception of the treatment itself. If a transactor were clearly able to monitor a transaction, he or she could recognize his or her ability to control the process and outcome in an exchange (Kirsch 1997). Then, this transactor could confirm the quality of the exchange of information (Kinney 2000) and could build a sense of trust with the counterpart (Nicolaou & McKnight 2006). Institution-based trust literature (McKnight et al, 2002, Stewart 2003, Pavlou & Gefen 2004) argues that a transactor could evaluate information quality as high and trust the counterpart in cases in which the counterpart is able to provide the needed institutional mechanisms for guaranteeing the success of a transaction. When they could acknowledge the AOS, audiences could confirm their control over the procedure for producing broadcast content, and they could confirm the fairness of the institutional mechanisms for production of broadcast content. In the case of the AOS, audiences could perceive a higher quality of content and place more trust in a broadcaster than when AOS is absent.

H7: Perceived distributive justice could enhance perceived content quality.

H8: Perceived procedural justice could enhance perceived content quality.

H9: Perceived interactional justice could enhance perceived content quality.

H10: Perceived distributive justice could enhance trust in a broadcaster.

H11: Perceived procedural justice could enhance trust in a broadcaster.

H12: Perceived interactional justice could enhance trust in a broadcaster.

2.3 Audience reactions

When people are exposed to stimuli, they sometimes form a general attitude toward the stimuli that then can inspire their subsequent behavioural intentions (Ajzen 2006; Bhattacherjee 2001; Kim & Son 2009). Service satisfaction has been regarded as one of attitudes subject to such formation (Oliver 1993). Service satisfaction refers to favorable feelings toward a service in question (Seddon 1997). Satisfaction has been known as the salient benefit to be derived from a IS service (Battacherjee 2002; DeLone & McLean 1992). When an audience perceives content quality as high, it could place a higher valuation on a broadcasting service (Rhee et al. 2009) and form a favorable attitude toward the service (Godlewski & Perse 2010; Manero et al. 2013). Trust could positively affect satisfaction because a high degree of trust could help a transactor maintain a more positive attitude toward a transaction (Nicolaou & McKnight 2006; Pavlou and Gefen 2004).

H13: Perceived contents quality could enhance satisfaction.

H14: Trust in a broadcaster could enhance satisfaction.

Satisfaction could induce a variety of positive behavioral intentions such as continuous usage (Kim & Son 2009), purchase (Song & Zahedi 2005), positive word-of-mouth (Kim & Son 2009), and reciprocal participation (Adams 1965; Bock et al. 2005). When we are satisfied with a specific service, we are willing to keep using it without too much regard for cost. Equity theory (Adams 1965) explains that inequity causes negative affective states that motivate people to change the parameters of the exchange so as to reestablish equity. When a service fails to meet our expectations, our emotions turn negative in reaction to the inequity of the situation and we undertake to correct it through reciprocal participation designed to help other transactors and through word-of-mouth to help the service provider. Researchers have found that satisfaction with content leads to continued content consumption (Aragon &

Llorens 1996), highly enhancing the value of the content (Rhee et al 2009) and of positive word-of-mouth (Lu & Lo 2007).

H15: Satisfaction could enhance continuous viewing intention.

H16: Satisfaction could enhance purchase intention.

H17: Satisfaction could enhance positive word-of-mouth intention.

H18: Satisfaction could enhance reciprocal participation intention.

In summary, the research model is represented in *Figure 1*. In this research, we decided to measure and control such variables as information overload (Paul & Nazareth 2010) and information category involvement and expertise (Sussman & Siegal 2000). Prior studies consider these variables influential in content adoption.

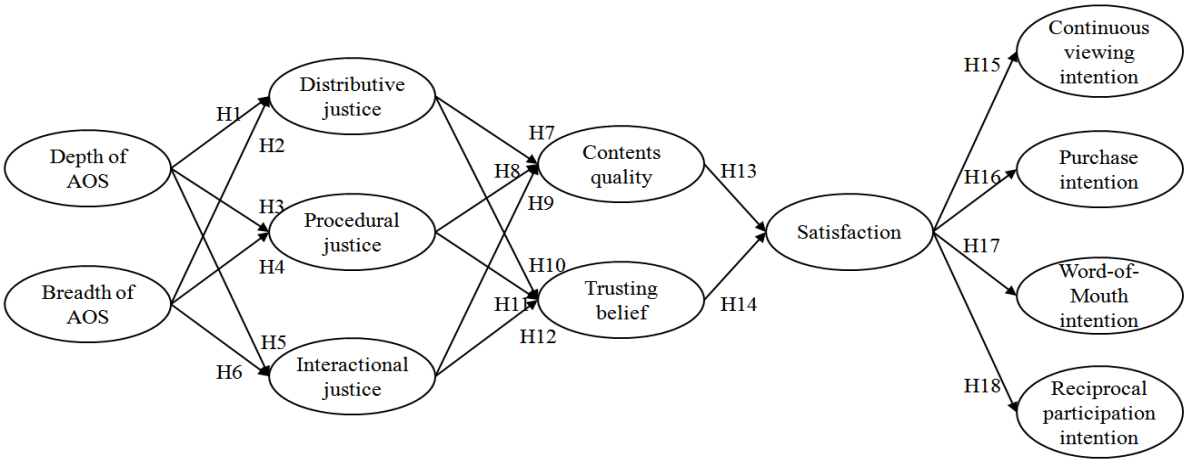

Figure 1. Research model.

3 METHODOLOGY

3.1 Operationalization of Constructs

As a way to enhance the validity of our constructs, they were measured using questions adapted from prior studies (Stone 1978). The items used to measure the constructs were adapted from various sources, and all of the questions were subjected to a conceptual validation exercise. Professors from Management Information Systems and from Broadcasting reviewed the face validities of the instruments. A pilot test with 10 graduate students was conducted to ensure the the material was easily understood and its meanings clear. After these procedures, all questions were then consolidated into an instrument. All items are measured on a 7-point Likert scale, except those items on the the depth and breadth of AOS. *Table 1* presents the measurement items of each construct and its sources.

Constructs	Measurement items	Sources
Distributive justice (DJ)	(DJ1) This broadcaster that adopt the audience opinions from SNS proide better value than the other broadcasters that do not adopt the audience opinions from SNS. (DJ2) The level of service from this broadcaster that adopt the audience opinions from SNS is superior to the service from the other broadcasters that do not adopt the audience opinions from SNS (DJ3) What audiences give up in terms of posting his opinions in SNS to this broadcaster is commensurate with what audiences receive in return from this broadcaster. (DJ4) Given the potential problem of posting his opinions in SNS to this broadcaster, the benefits audiences receive from this broadcaster are fair.	Son and Kim 2008
Procedural Justice (PJ)	This broadcaster make a reasonavle effort to... (PJ1) clearly reveal how the audiences opinions from SNS is collected and used. (PJ2) get consent before they collect audiences opinions from SNS.	Son and Kim 2008

	(PJ3) allow his audiences to correct inaccurate opinions for protecting distortion in his broadcasting content. (PJ4) prevent inappropriate attempt to distort his broadcasting content in producing process.	
Interactional Justice (IJ)	Related to the collection and use of the audiences opinion from SNS... (IJ1) This broadcaster tell the truth. (IJ2) This broadcaster are honest with audiences. (IJ3) This broadcaster fulfill their promises. (IJ4) This broadcaster are in general predictable and consistent. (IJ5) This broadcaster are trustworthy	Son and Kim 2008
Perceived contents quality (CQ)	In my thought, the given broadcasting content... (CQ1) is current enough to meet my needs. (dropped) (CQ2) is accurate enough to meet my needs. (CQ3) is pretty much what I need. (CQ4) is are actually fit in public opinion. (CQ5) is appropriate level of detail for my purposes. (CQ6) can be relied upon. (CQ7) can not be distorted.	Nicolaou & McKnight 2006
Trusting belief (TB)	Compared with the other broadcasters, this broadcaster... (TB1) can be trusted at all times. (TB2) has high integrity. (TB3) is a competent and knowledgeable.	Pavlou & Gefen 2004
Satisfaction (SAT)	(SAT1) I am contented with the service by this broadcaster. (SAT2) I am satisfied with the service by this broadcaster. (SAT3) The service by this broadcaster meets what I expect for this type of service.	Kim & Son 2009
Continuous viewing intention (CU)	The broadcasting service which adopt audiences opinions... (CU1) I intend to continue viewing that rather than discontinuing (CU2) My intentions are to continue viewing that than viewing any alternative broadcasting service. (CU3) If I could, I would like to continue my viewing of that.	Bhattacherjee 2001
Purchase intention (PC)	When I would purchase some contents in this broadcaster… (PC1) The probability of buying the contents in this broadcaster would be probable. (PC2) The likelihood that I would purchase the contents is highly likely. (PC3) My willingness to buy the contents is highly willing. (PC4) The probability that I would consider buying the contents is highly probable	Song et al. 2005
Word-of-Mouth intention (WM)	(WM1) I will say positive things about this broadcaster to other people (WM2) I will recommend this broadcaster to anyone who seeks my advice. (WM3) I will refer my acquaintances to this broadcaster.	Kim & Son 2009
Reciprocal participation intention (RP)	(RP1) I know that other audiences will help me, so it's only fair to post my opinion in SNS. (RP2) I trust that other audiences would help me if I post my opinion in SNS.	Bock et al. 2005
Information Overload (IO)	(IO1) I need more time to understand this broadcasting content. (IO2) This broadcasting content contains too complex information for me to understand. (IO3) This broadcasting content contains too much information for me to understand.	Paul & Nazareth 2010
Involvement (IV)	(IV1) How involved are you in the topic of this broadcasting content. (IV2) How much has the issue discussed in this broadcasting content been on your mind lately.	Sussman &Siegal 2003
Expertise (EP)	(EP1) How informed are you on the subject matter of this issue in broadcasting content. (EP2) To what extent are you an expert on the topic of this broadcasting content.	

Table 1. Measurement items

3.2 Data collection

We conducted a laboratory experiment to verify the hypotheses in this study (Campbell & Stanley 1963). Because the depth and breadth of AOS had not previously been used in broadcasting practice, a laboratory might be as applicable to our study as other methodologies such as surveys. Like the other online companies, broadcasters were reluctant to recruit a real audience to serve as subjects (Koufaris 2002). Furthermore, a laboratory experiment permitted us to investigate causality between variables controlling the other exogenous variables (Campbell & Stanley 1963). For our experiment, we developed three types of virtual broadcasting content that were characterized by differences in the depth and breadth of AOS. The virtual broadcasting content in this study was composed of two parts of introduc-

tion and a section that varied in content from group to group. A brief introduction explained the discussion issues, and to ensure realism, it referred to actual broadcast discussion scripts (KBS 2011). The manipulation section referred to collections of real audience opinions from SNS during broadcasts. One version of broadcast content was a summary of a majority opinion from SNS (Group A). A second version consisted of a summary of majority opinion in SNS and details of the comments involved (Group B), and the third was made up of two summaries of majority and minority opinions from SNS and the details of their comments (Group C). The difference between Group A and B represents the depth of AOS, and the difference between Group B and C represents the breadth of AOS. *Table 2* presents the components of virtual broadcasting content in each group.

Components of the virtual broadcasting content in this study	Components exposured		
	Group A	Group B	Group C
Introduction	o	o	o
The summary of majority opinions in SNS	o	o	o
The detail comments of majority opinions in SNS	-	o	o
The summary of minority opinions in SNS	-	-	o
The detail comments of minority opinions in SNS	-	-	o

cf. Three virtually made broadcasting content(video file) in this study could be provided on request.

Table 2. Virtual broadcasting content by groups

The population used consists of an audience with no prior exposure to AOS in broadcast content. We recruited volunteers from undergraduate students majoring business administration. A total of 300 subjects were initially recruited, but one subject had to withdraw for personal reasons; 299 subjects were then randomly assigned to the three groups. Subjects received a brief explanation about the context of the experimental situation and of the issues at stake, such as an open price and a suggested retail price. They were then exposed to each version of the virtual broadcasting content and asked to complete the material. Each subject received $5 as a reward for participation. Because five responses were irresponsible (all responses were rated either 1 or 7) or were incomplete (no response), we netted 294 responses for analysis. The demographic data of respondents were as follows: 186 respondents (63.3%) were male, and 108 (36.7%) were female. Prior discussion forum participation in broadcasting was none (206, 70.1%), 1-2 times (64, 21.8%), 2-3 times (12, 4.1%), 3-5 times (6, 2.0%), 5-10 times (6, 2.0%), and over 10 times (0, 0%).

4 ANALYSIS AND RESULTS

Because the depth and breadth of AOS manipulated in this study were gathered in a binary format, we could not simply compare the effect of AOS with the other data that was measured on a 7-point Likert scale. We performed the ANOVA to validate the effect of the depth and breadth of AOS on justice perceptions. ANOVA results indicated that at the O.05 significance level, the means of three perceptions of justice ranked as follows according to the test groups: Group C (DJ: 5.327, PJ: 5.360, IJ: 5.214), B (DJ: 4.480, PJ: 4.533, IJ: 4.533), and A (DJ: 3.548, PJ: 4.120, IJ: 4.122) and that the upper boundaries and lower boundaries of the means were not superimposed on each other. Moreover, the means of each group differed significantly from the other groups. The difference between groups A and B shows the depth of AOS, and the difference between groups B and C shows the breadth of AOS. Consequently, we concluded that the depth and breadth of AOS could have significant positive effect on perceptions of distributive, procedural, and interactional justice. The results of ANOVA are presented in *Table 3*.

Other hypotheses were tested using PLS structural equation analysis, which could simultaneously assess the reliability and validity of the measures of constructs and estimate the relationships among them (Wold 1982). PLS has been widely used in various research because of its technical advantages of simplicity and reliability (Ahuja et al. 2003; Chin 1998). A PLS model is analyzed in two stages, first as an assessment of the reliability and validity of the measurement model and then as an assessment of the structural model.

Mean difference estimates							Turkey HSD multi-comparison results						
Factor		SS	df	MS	F	p	Group		MD	SE	p	LB	UB
Group	DJ	155.029[a]	2	77.515	72.889	.000	A	B	-0.931*	0.147	0.000	-1.278	-0.584
								C	-1.778*	0.147	0.000	-2.125	-1.431
							B	A	0.931*	0.147	0.000	0.584	1.278
								C	-0.847*	0.147	0.000	-1.194	-0.500
							C	A	1.778*	0.147	0.000	1.431	2.125
								B	0.847*	0.147	0.000	0.500	1.194
	PJ	78.107[b]	2	39.054	47.256	.000	A	B	-0.413*	0.130	0.005	-0.719	-0.107
								C	-1.240*	0.130	0.000	-1.546	-0.934
							B	A	0.413*	0.130	0.005	0.107	0.719
								C	-0.827*	0.130	0.000	-1.132	-0.521
							C	A	1.240*	0.130	0.000	0.934	1.546
								B	0.827*	0.130	0.000	0.521	1.132
	IJ	59.617[c]	2	29.808	41.136	.000	A	B	-0.410*	0.122	0.002	-0.697	-0.124
								C	-1.092*	0.122	0.000	-1.378	-0.805
							B	A	0.410*	0.122	0.002	0.124	0.697
								C	-0.682*	0.122	0.000	-0.968	-0.395
							C	A	1.092*	0.122	0.000	0.805	1.378
								B	0.682*	0.122	0.000	0.395	0.968

*cf. SS; sum of squared in type III, df; degree of freedom, MS; mean squared, MD; mean difference, SE; standard error, LB; lower bounding, UB; upper bounding, a. $R^2 = 0.329$, b. $R^2 = 0.240$, c. $R^2 = 0.215$, * means mean difference is significant at 0.05 level.*

Table 3. ANOVA results

4.1 Measurement model

We examined the average variance extracted (AVE) to assess the convergent validity of the constructs. AVE values should exceed a 0.50 cut-off, which indicates that the construct accounts for the majority of the variance. Also, we examined composite reliability (CR) to assess inter-item reliability (Werts et al. 1973). CR values should be greater than a 0.70 cut-off, which indicates the indicators are internally consistent (Fornell and Larcker 1981). All AVE and CR values in this study exceed the recommended criteria. The AVE and CR in each construct are presented in *Table 4*. Discriminant validity refers to the extent to which a construct differs from the other constructs, and it can be accessed when a construct shares more variance with its own items than with other constructs (Barclay et al. 1995). Discriminant validity can be demonstrated by accessing whether the square of AVE exceeds the other correlations among the latent variables (Chin 1998). All squares of AVE (diagonal values in the right part of *Table 4*) in this study exceed the correlations among the other latent variables (off-diagonal values in the right part of *Table 4*). An additional way to demonstrate convergent and the discriminant validity is to access the factor loadings of each indicator. Each indicator should load higher on the construct than on any other factor (Chin 1998). Factor loadings and cross-loadings are presented in *Table 5*. It indicates that the factor loadings exceeded any other cross-loadings, so we concluded that discriminant and convergent validity are adequate in this study.

	AVE	CR	α	DJ	PJ	IJ	CQ	TB	SAT	CU	PC	RP	WM	IO	IV	EP
DJ	0.780	0.934	0.906	0.883												
PJ	0.767	0.908	0.847	0.518	0.876											
IJ	0.792	0.938	0.912	0.664	0.696	0.890										
CQ	0.651	0.918	0.893	0.546	0.659	0.711	0.807									
TB	0.800	0.923	0.874	0.617	0.599	0.693	0.749	0.894								
SAT	0.921	0.972	0.957	0.718	0.549	0.660	0.662	0.779	0.960							
CU	0.875	0.955	0.929	0.662	0.452	0.547	0.508	0.674	0.721	0.935						
PC	0.886	0.969	0.957	0.676	0.479	0.585	0.544	0.661	0.744	0.857	0.941					
RP	0.950	0.975	0.948	0.502	0.413	0.539	0.405	0.515	0.462	0.592	0.561	0.975				
WM	0.899	0.964	0.944	0.623	0.486	0.525	0.539	0.664	0.729	0.772	0.814	0.628	0.948			
IO	0.739	0.892	0.918	0.009	-0.003	0.051	0.104	0.098	0.048	0.071	0.092	0.080	0.098	0.859		
IV	0.904	0.950	0.898	-0.081	-0.060	-0.026	-0.012	-0.075	-0.096	-0.147	-0.142	-0.020	-0.046	-0.166	0.951	
EP	0.878	0.935	0.884	-0.051	0.036	-0.029	0.048	-0.046	-0.065	-0.104	-0.082	-0.052	-0.034	-0.215	0.770	0.937

** AVE; average variance extracted, CR; composite reliability, α:Cronbach's α*

*** Diagonal cells in right side are the square root of AVE of each construct. Off-diagonal cells are squared correlations.*

Table 4. Latent variable correlations.

	DJ	PJ	IJ	CQ	TB	SAT	CU	PC	WM	RP	IO	IV	EP
DJ1	0.909	0.496	0.633	0.534	0.600	0.683	0.617	0.649	0.589	0.475	-0.076	-0.017	-0.001
DJ2	0.920	0.440	0.599	0.488	0.553	0.674	0.642	0.659	0.615	0.496	0.001	-0.046	-0.060
DJ3	0.818	0.381	0.524	0.359	0.443	0.518	0.463	0.470	0.438	0.395	0.042	-0.095	-0.046
DJ4	0.881	0.496	0.581	0.520	0.563	0.640	0.594	0.585	0.539	0.402	0.077	-0.137	-0.076
PJ2	0.555	0.846	0.606	0.549	0.526	0.517	0.392	0.390	0.456	0.365	0.019	0.035	0.084
PJ3	0.455	0.914	0.629	0.615	0.550	0.490	0.453	0.483	0.457	0.379	-0.010	-0.087	-0.003
PJ4	0.349	0.866	0.592	0.567	0.495	0.436	0.338	0.381	0.362	0.340	-0.017	-0.102	0.018
IJ1	0.578	0.640	0.910	0.649	0.618	0.587	0.520	0.551	0.496	0.523	0.061	0.007	0.018
IJ2	0.584	0.612	0.929	0.628	0.624	0.568	0.475	0.513	0.470	0.526	0.065	-0.046	-0.038
IJ3	0.544	0.591	0.863	0.583	0.556	0.513	0.375	0.417	0.360	0.415	0.009	0.001	-0.050
IJ5	0.650	0.629	0.856	0.663	0.659	0.669	0.561	0.587	0.529	0.448	0.043	-0.052	-0.035
CQ2	0.485	0.530	0.612	0.806	0.641	0.597	0.429	0.490	0.459	0.363	0.079	0.050	0.056
CQ3	0.398	0.496	0.485	0.822	0.585	0.537	0.416	0.432	0.446	0.272	0.116	-0.072	-0.016
CQ4	0.259	0.451	0.496	0.757	0.508	0.404	0.338	0.317	0.342	0.292	0.042	0.001	0.100
CQ5	0.394	0.450	0.442	0.812	0.538	0.501	0.348	0.397	0.417	0.236	0.153	-0.006	0.002
CQ6	0.517	0.568	0.628	0.852	0.694	0.576	0.474	0.489	0.483	0.373	0.086	-0.065	0.006
CQ7	0.525	0.653	0.717	0.790	0.625	0.555	0.428	0.469	0.440	0.390	0.038	0.025	0.084
TB1	0.565	0.544	0.627	0.673	0.917	0.724	0.629	0.617	0.649	0.466	0.106	-0.026	-0.007
TB2	0.580	0.594	0.712	0.697	0.925	0.686	0.587	0.582	0.578	0.492	0.055	-0.026	0.018
TB3	0.509	0.463	0.510	0.640	0.838	0.682	0.592	0.575	0.553	0.422	0.104	-0.157	-0.146
SAT1	0.682	0.539	0.646	0.643	0.745	0.954	0.697	0.728	0.685	0.432	0.021	-0.118	-0.066
SAT2	0.689	0.533	0.636	0.639	0.756	0.969	0.700	0.721	0.722	0.459	0.072	-0.077	-0.047
SAT3	0.698	0.509	0.619	0.625	0.743	0.957	0.679	0.693	0.691	0.440	0.044	-0.082	-0.076
CU1	0.535	0.376	0.415	0.422	0.574	0.592	0.901	0.703	0.646	0.517	0.045	-0.220	-0.165
CU2	0.656	0.435	0.524	0.499	0.645	0.707	0.952	0.825	0.744	0.545	0.068	-0.115	-0.079
CU3	0.657	0.452	0.582	0.499	0.665	0.714	0.952	0.864	0.767	0.596	0.084	-0.091	-0.059
PC1	0.671	0.441	0.544	0.526	0.640	0.718	0.840	0.942	0.789	0.521	0.094	-0.134	-0.101
PC2	0.630	0.445	0.550	0.521	0.617	0.697	0.788	0.937	0.771	0.503	0.083	-0.111	-0.060
PC3	0.638	0.485	0.561	0.501	0.643	0.712	0.830	0.961	0.777	0.565	0.076	-0.151	-0.072
PC4	0.604	0.431	0.548	0.501	0.587	0.673	0.765	0.924	0.727	0.523	0.093	-0.137	-0.074
WM1	0.590	0.471	0.503	0.499	0.614	0.668	0.724	0.753	0.931	0.628	0.087	-0.049	-0.045
WM2	0.598	0.487	0.530	0.548	0.668	0.718	0.749	0.806	0.963	0.608	0.104	-0.043	-0.043
WM3	0.585	0.425	0.460	0.484	0.606	0.685	0.722	0.756	0.950	0.549	0.088	-0.040	-0.009
RC1	0.498	0.420	0.537	0.385	0.501	0.465	0.583	0.559	0.616	0.977	0.082	-0.046	-0.071
RC2	0.481	0.385	0.513	0.406	0.504	0.434	0.572	0.535	0.608	0.973	0.074	0.009	-0.029
IO1	-0.024	-0.052	-0.003	-0.029	-0.008	-0.041	0.008	0.030	0.057	0.051	0.668	-0.164	-0.156
IO2	0.019	-0.042	0.031	0.018	0.041	0.028	0.066	0.092	0.108	0.087	0.886	-0.159	-0.207
IO3	0.000	-0.001	0.048	0.106	0.097	0.038	0.063	0.082	0.090	0.075	0.993	-0.171	-0.211
IV1	-0.102	-0.053	-0.035	-0.017	-0.082	-0.089	-0.143	-0.147	-0.047	-0.018	-0.188	0.971	0.726
IV2	-0.039	-0.063	-0.010	-0.003	-0.055	-0.096	-0.136	-0.117	-0.040	-0.021	-0.113	0.930	0.748
EP1	-0.060	0.030	-0.032	0.050	-0.059	-0.069	-0.103	-0.088	-0.048	-0.066	-0.211	0.749	0.985
EP2	-0.020	0.048	-0.016	0.035	-0.005	-0.045	-0.090	-0.052	0.008	-0.008	-0.192	0.708	0.887

Table 5. Factor loadings and cross-loadings.

4.2 PLS analysis results

The research model and hypotheses have been validated by estimates using 200 iterations of the bootstrapping technique in PLS (Chin and Frye 1996, Chin et al. 2010). The explanatory power of the structural model was evaluated by the R^2 value of the dependent variables. To examine the hypotheses, we assessed the t-statistics for the standardized path-coefficient and calculated p-values based on a two-tailed test with a significance level of 0.05. The results of the PLS analysis are presented in *Figure 2*. All hypotheses except one (H7) were approved by statistically significant margins. The exception was that distributive justice was not significantly linked to perceived content quality. Such R^2 values of the dependent variables were calculated as perceived content quality (0.577), trust in a broadcaster (0.550), satisfaction (0.621), continuous viewing intention (0.520), purchase intention (0.553), word-of-mouth intention (0.531), and reciprocal participation intention (0.214).

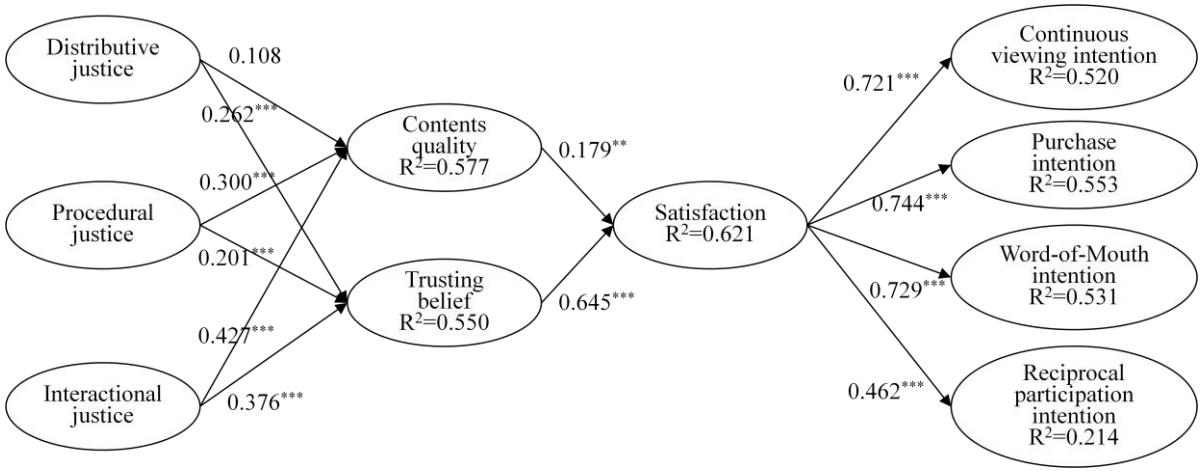

Figure 2. PLS analysis results.

5 DISCUSSION

The results indicate that the depth and breadth of AOS significantly enhance judgments of content and broadcaster quality via three perceptions of justice and then could affect such behavioral intentions as continuous viewing, purchase, word-of-mouth, and reciprocal participation, all of which represent the benefits of AOS for broadcasters. The results indicate that AOS could successfully enhance three forms of justice perception. We could deduce that IS and institutional mechanisms may be the antecedents of the justice perceptions of transactors. Three types of justice perception could successfully enhance positive judgments of content quality and trust in a broadcaster. This result resembles the findings of a prior study (Cohen-Charash & Spector 2001) that argued that perceptions of justice could positively affect the experiences of social transactors. Incidentally, the results show that the relationship between distributive justice and a perception of content quality is not supported statistically. To examine this result, we did additional interviews of the volunteer subjects. They said that the cost of posting comments in SNS could be lower than earlier expected because sometimes they read and post comments in SNS for fun and that the AOS could not be novel because broadcasters are innately public organization responsible for collecting public opinion. This interview result may be similar to the findings of earlier studies that argued that the motivation for SNS usage could have both utilitarian and affective factors (Kim et al. 2012) and also argued that one of the roles of a broadcasting service could be the spread of democracy (Bennett & Entman 2011; Jenkins & Thorbum 2004). Future study could explore the relationship between distributive justice and perceptions of information quality. The results about behavioral intentions in this study are similar to the findings from prior studies on the postadoption behavior of consumers and IS users (Kim & Son 2009). These findings may have implications for broadcasters in the strategic use of SNS to enhance their services.

6 CONCLUSION

This study empirically validated the impact of AOS, which is a novel area for research in IS and broadcasting on the cognitive and affective reactions of audiences. As a consequence, this study has the following academic implications. First, we introduced the AOS into the research arena and empirically validated its effect on audience reactions. Despite the importance of audience participation and the practical usage of such participation, the impact of the AOS had not yet been discussed in the research arena. This research topic about the role of IS in allowing synchronous, diverse, and detailed opinions of mass audience to be used in broadcasting services could be expanded. Also, we could expand the research area to include the convergence in a super-connected society between a novel business model using IS and such traditional industries as broadcasting. Second, we can suggest such other antecedents of institutional mechanisms for building trust as the characteristics of information ex-

change discussed in this study. These characteristics could be applicable to mechanisms for ensuring trust in an information society alongside such existing consumer-oriented trust building mechanisms as escrow services and credit card guarantees (Pavlou & Gefen 2004). Third, we could explore the impact of SNS on broadcasters through a more balanced view that, by adopting the theory of justice, emphasizes both profitability and public interest. This study emphasizes the public role of broadcasters, in contrast to the trend emphasizing the profitability of broadcasters as displayed by media conglomerates such as Time Warner. Fourth, our findings could be more reasonable and persuasive because we studied the impact of IS on broadcasters against the theoretically rigorous background of the theory of justice.

Besides its academic implications, this study has various practical implications on how to use IS and SNS strategically. First, this study contributes to determining the degree of usage of SNS. Our findings suggest that SNS could be used strategically as a more integrated aspect of firms' value chains in much the same way that content was manipulated for the purposes of this study. Until now, SNS has been used mostly as a support activity in the value chain, and some researchers argued that the SNS usage of marketing channels would not appeal to consumers (Kim et al. 2012). More extensive SNS usage could help enhance the competitive positions of firms. Second, the AOS has not been introduced into the services of broadcasters, and the findings suggest the introduction of the AOS to broadcasters could be beneficial. Usage of the AOS in content production could be used effectively to appeal to audiences. Our interview results indicate that the AOS could be an efficient way to appeal to an audience and to build trust in a broadcaster because SNS users perceive a comparatively low cost to posting their information. Furthermore, because the dependent variables in this study represent the factors that directly affect the performance of broadcasters, they could reduce the uncertainty of IS and SNS adoption, and they could help justify investment in IS and SNS. Third, our findings indicate that the AOS could significantly affect purchase intention. It could provide the cues for broadcasters to develop an additional profit-making business model.

Despite the value and meaning of this study, it also has some limitations. First, this study identifies the depth and breadth of the characteristics of information exchange as the characteristics of the AOS. But there are two other characteristics, volume and diversity of information exchange. Audiences could provide various types of information such as audio and video in SNS, and these types of information could be more appealing to audiences, and they have actually been used for social interaction in "Jasmine Democracy Revolution" (Darwish & Lakhtaria 2011). Future study could explore the impact of these two types of information exchange characteristics on social actions (Teeni 2001). Second, we examined the relationship between interactional justice and trust as independent factors. However, there are two competing perspectives on the relationship between these constructs. A deeper investigation of the relationship of these constructs could be beneficial to achieving more comprehensive results within various contexts. Third, we used a laboratory experiment to validate our hypotheses. Although a laboratory experiment helped explain the relationship between variables more rigorously by controlling the exogenous variables, it nevertheless could not reflect the dynamics of the real world. To enhance external validity, future studies could adopt various methods such as surveys that have advantages in portraying these practical real-world dynamics. Fourth, we performed the experiment by using screens that are fixed in location. But SNS usage by mobile devices such as smartphones and tablet PCs has increased. Mobility and portability could be important factors to effectively use SNS. We expect that future studies investigating these variables could provide more important implications or business practices. Fifth, the subjects in this study were students because students were easy to recruit. In fact, public opinion may be made by people with various demographic characteristics such as being 30 to 40 years old. The impact of the AOS should be investigated in the future with subjects with more varied demographic characteristics. Lastly, we empirically validated the impact of SNS only in the broadcasting industry. The impact of SNS on business values in other industries also presents a field for further investigation.

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