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Creating customer loyalty in online brand communities

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ABSTRACT

Online social networking sites (SNSs) has become one of the most popular activities for people accessing the Internet. In this regard, many Businesses create their online brand communities in order to build further relationship with their customers. The objective of this study is to examine the potential factors of customers' loyalty intentions in online brand communities. Current study proposed a research framework in which information quality, need for social capital, emotion, and perceived critical mass were expected to influence customer satisfaction and relationship commitment, which will in turn result in loyalty intention. Data was collected from customers in two Facebook fan pages (Xiaomi and MyBeautyDiary.taiwan) that represent wristband (search product) and facial mask (experience product).

Results indicated that information completeness and need for bridging social capital were significant predictors of satisfaction and relationship commitment for both brand communities, while pleasure and perceived critical mass were influential factors of customer satisfaction across two brands. Further, believability and need for maintaining social capital were significant indicators only for facial mask community consumers, while arousal was important only for wristband fans. Findings from this study provided directions for online brand communities to develop customer loyalty strategies.

1. Introduction

1.1. Research background

With the rapid growth of Social Networking Services (SNS), people have changed the way of interaction with businesses and brands. In recent years, more and more companies are increasingly investing in social media to foster relationships and interact with customers (De Vries, Gensler, & Leeflang, 2012). They tried to build and promote the long-term relationship with the users through the virtual brand community, which is helpful to gather the customers who are interested in the brand, as well as to create, customize, and distribute persuasive advertising messages of products and services (Lee, Kim, & Kim, 2011).

Compared with traditional media, SNS users has evolved from traditionally passive information receivers to information co-creators and showed higher involvement in online brand communities than in offline environment (Benedikt & Werner, 2012). Fortunately, with the help of technologies, the online brand communities operated through SNS platforms such as Facebook have a variety of ways to interact with their "fans" and thus people's commitment with the relationship of the brand can be enhanced, which in turn resulted in higher loyalty intention. In fact, the relationship between online brands and customers have

attracted some attention from scholars. For example, De Vries et al. (2012) examine the drivers of online brand popularity in terms of people's interaction with the brands (i.e., likes and comments on brand posts). Their results suggested that the position of the brand post on the brand fan page list was one of the indicators of brand post popularity. Other drivers of brand post popularity include vividness and interactivity of the brand posts.

Further, SNS users also showed higher demand in SNS. For example, they expected to get more information from the brands and companies through interactions (Zhang, Guo, Hu, & Liu, 2017). Thus, online brand communities will be more likely to attract "fans" if they can provide high quality information that is valuable to the customers. Also, a more satisfied customer was expected to show more positive attitudes and behaviors toward the online brand communities (Chang, Hsieh, & Tseng, 2013; Schamari & Schaefer, 2015).

Accordingly, the objective of this study is to examine the predictors of consumers' loyalty of online brand communities. The predictors considered in this study include the information quality of the online brand communities' posts, the consumers' need for online social capital and emotion, as well as the perceived critical mass. Those factors are expected to influence customer satisfaction and customers' relationship commitment toward the online brand and result in long-term loyalty.

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2. Literature review

2.1. Information quality

In general, Information quality (IQ) is one of the most critical concerns in Management Information Systems (MIS) research. For example, DeLone and McLean (2003) proposed an information system success model based on prior studies in a holistic view. Information quality is one of the predictors of information system user satisfaction and captures the concept of the quality of the information that the system produces. The concept includes information characteristics such as accuracy, timeliness, relevance, aggregation, and formatting. While information quality has become an important concept in information system usage research, the concept is complicated and need to be clarified. Wang and Strong (1996) is one of the few early studies that examine the data quality for data consumers. They suggested four data quality dimensions: accuracy (i.e., believability, accuracy, completeness ...), relevancy (i.e., relevancy, timeliness, value-added), representation (i.e., interpretability, ease of understanding), and accessibility (i.e., accessibility, access security). In another study, Lee, Strong, Kahn, and Wang (2002) categorized the IQ dimensions into four IQ categories, which is intrinsic IQ (i.e., accuracy, believability, reliability), contextual IQ (i.e., relevance, completeness, timeliness, appropriate amount), representational IQ (i.e., understandability, interpretability, clarity) and accessibility IQ (i.e., accessibility, usability, ease of use). Similarly, Chae, Kim, Kim, and Ryu (2002) suggest another information quality framework that includes four dimensions in mobile services: connection quality (i.e., stability, responsiveness), content quality (i.e., objectivity, believability, amount), interaction quality (i.e., structure, navigation, presentation) and contextual quality (i.e., timeliness, promptness). With the rapid growth of Internet applications, people rely heavily on the information offered by a variety of websites and mobile apps. Thus, the study that addressed the information quality in information system usage context has to be shifted to the web applications for general use. In this regard, the IS success model proposed by DeLone and Mclean in 2003 was updated to suggest a more appropriate model in the e-commerce context which captures the website usage concern (DeLone & McLean, 2003), in which the information quality dimension was described based on completeness, ease of understanding, personalization, relevance, and security. Table 1 summarized several important information dimensions based on major studies on information quality.

As indicated in Table 1, this study focused on four important information quality dimensions: completeness, believability, timeliness, and amount as those dimensions are the most popular IQ dimensions and also captures the characteristics of information provided on websites. Those for information quality dimensions were described as follows. Completeness refers to the presence of all defined content (Wang & Strong, 1996). Believability was defined as “the extent to which data

are accepted or regarded as true, real, and credible” (Wang & Strong, 1996). Timeliness refers to the extent to which the age of the data is appropriate for the task at hand (Wang & Strong, 1996). Finally, amount of the data suggested the extent to which the quantity or volume of available data is appropriate (Wang & Strong, 1996). While the information quality is an important issue in offering web-related services as almost all the information were provided through the web pages, limited studies addressed the issue of information quality and customer loyalty in websites. Kim and Niehm (2009) is one of the limited studies that examine the website quality by considering the effect of information completeness on online consumers' loyalty intention.

Some other studies although did not address the specific dimension, the information quality was consistently proved to be significant predictor of customer loyalty. For example, results from (Aggarwal & Rahul, 2017) showed that perceived information quality is one of the significant predictor that influenced consumer purchase intentions indirectly through customer satisfaction.

Based on the above literature, current study proposed the following hypotheses:

H1. Information quality will positively associate with customer satisfaction.

H1a. Completeness of information will positively associate with customer satisfaction.

H1b. Believability of information will positively associate with customer satisfaction.

H1c. Timeliness of information will positively associate with customer satisfaction.

H1d. Appropriate amount of information will positively associate with customer satisfaction.

H2. Information quality will positively associate with relationship commitment.

H2a. Completeness of information will positively associate with relationship commitment.

H2b. Believability of information will positively associate with relationship commitment.

H2c. Timeliness of information will positively associate with relationship commitment.

H2d. Appropriate amount of information will positively associate with relationship commitment.

2.2. Need for online social capital

Social capital was first introduced by Coleman (1988) who defined it as the resources created in social networks and connections between users, which will bring value or benefit for the members of the social relations. Social relationships are important indicators of social capital, which can be understood as a form of capital such as financial or human capital.

Internet was suggested to be a suitable technology for generating social capital (Resnick, 2001). Online personal interactions is believed to break the physical limitation and face-to-face constraints and lead to the accumulation of social capital (Chi, 2011). Some scholars have put the focus of the reason why people participate the Internet activities from the social capital perspective (Ellison, Steinfield, & Lampe, 2007). mentioned that when the number of friends on social networking sites and the quality of personal relationships signal status and popularity, the benefits generated from social interactions not only may motivate people to connect online, but also may gain in social capital and psychological well-being (Skoric & Kwan, 2011). investigated the online

Table 1
Summarize of literature on information quality.

	Completeness	Believability	Timeliness	Amount
(Zmud, 1978)	✓			
(DeLone & McLean, 1992)	✓		✓	✓
(Goodhue & Thompson, 1995)				
(Wang & Strong, 1996)	✓	✓	✓	
(Wand & Wang, 1996)	✓			
(Jarke & Vassiliou, 1997)	✓	✓	✓	
(Katerattanakul & Siau, 1999)				
(Y. W. Lee et al., 2002)	✓	✓	✓	✓
(Chae et al., 2002)		✓	✓	✓
(DeLone & McLean, 2003)	✓		✓	
This study	✓	✓	✓	✓

social capital among Facebook and video game players while (Kaye, Kowert, & Quinn, 2017) specifically examined the role of social capital in online gaming engagement. In addition, Qian, Xiayu, Xiaojuan, and MZhangsheng (2017) found that online social capital can enhance customers' satisfaction with the sellers, which subsequently affect their loyalty to the C2C platform.

In order to understand the concept of social capital, Putnam (2000) identified two types of social capital: bonding and bridging. Bridging occurs when people from different backgrounds interacted with each other. It could open up opportunities for information or new messages for the users as well as the emotional support (Williams, 2006). Thus, bridging could refer to weak tie in social network that describe the relationships among distant acquaintances who may familiar with some specific issues or contexts and willing to share their experience. Bonding occurs when individuals have strong tie with each other who share similar backgrounds. Bonding might include emotional support, physical succor or other benefits. Huang and Liu (2017) examined the role of online social capital co-workers' connections on Facebook and the results revealed that online bonding social capital was positively related to job satisfaction. Phua, Jin, and Kim (2017) investigated the online social capital among Facebook, Twitter, Instagram, and Snapchat users and found a positive relation between SNSs use and online bridging and bonding social capital.

In addition to the above two social capital types, Ellison et al. (2007) suggested a third type: the maintained social capital, which refers to a maintained relationship with high school acquaintances as opposed to close friends. The maintained social capital enabled the scholar to explore the social connections in an online social network after physically disconnecting from it.

Based on the above literature, current study proposed the following hypotheses:

H3. Need for social capital will positively associate with customer satisfaction.

H3a. Need for bridging social capital will positively associate with customer satisfaction.

H3b. Need for bonding social capital will positively associate with customer satisfaction.

H3c. Need for maintaining social capital will positively associate with customer satisfaction.

H4. Need for social capital will positively associate with relationship commitment.

H4a. Need for bridging social capital will positively associate with relationship commitment.

H4b. Need for bonding social capital will positively associate with relationship commitment.

H4c. Need for maintaining social capital will positively associate with relationship commitment.

2.3. Emotion

Mehrabian and Russell (1974) proposed a three-dimensional schema of basic emotional states: pleasure, arousal and dominance (PAD). Pleasure-displeasure dimension refers to the degree to which the person feels good, joyful, happy, or satisfied in the resulting situation; arousal-nonarousal refers to the degree to which a person feels excited, stimulated, alert, or active in a specific situation; and dominance-submissiveness refers to the extent to which the individual feels in control of, or free to act in a particular situation. Studies which were designed to test the model have found that the pleasantness and arousal dimensions described well the affective space evoked by environments, while dominance was found to be of little predictive value in similar

situations (Donovan and Rossiter 1982, 1994; Russell, Ward, & Pratt, 1981; Russell & Pratt, 1980). Thus, more recent summaries of the model define two rather than three basic dimensions: pleasantness and arousal. Accordingly, the dominance factor was not included in current study.

Consumers' emotional responses has been found to be an important indicator of purchase behavior or behavioral intentions (Holbrook & Batra, 1987; Lazarus & Folkman, 1987; Mazaheri et al. 2012, 2014; Richins, 1997; Smith & Bolton, 2002).

Further, emotion was believed to be one of the predictors of consumer satisfaction. For example, Oliver (1994) found significant relationship between affect and satisfaction based on the data collected in an adolescent health-care service. Sui and Baloglu (2003) suggested that emotional attachment is a significant predictor of behavioral outcomes (such as word of mouth, cooperation, time spent in casinos) and loyalty. Lee, Back, and Kim (2009) examined the influence of restaurant customers' emotions on satisfaction and brand loyalty. The results suggested that customers' emotions play the dominant role in explaining satisfaction and brand loyalty.

The relationship between emotion and commitment is also worth to be investigated but lacks attention from academic studies. Timothy et al. (2017) explored the relationships among customer experience, customer commitment by suggesting a comprehensive concept model to illustrate the complex relationships among the constructs. However, a research gap was revealed that limited relationships between customer experience (includes cognitive element, emotional element, physical & sensorial element and social element) and customer commitment were discussed in prior studies. Abraham (1999) is one of the limited studies that examine this emotion-commitment relationship in an organizational setting. She suggested that employees' emotional dissonance was a significant predictor of job dissatisfaction and reduced organizational commitment. Further, Reydet and Carsana (2017) examined the influence of positive affect on commitment (affective and continuance), which in turn affected consumers' attitudinal loyalty in retail banking context. Significant relationship was revealed between affect and commitment.

Based on the above literature, current study proposed the following hypotheses:

H5. Emotion will positively associate with customer satisfaction.

H5a. : Pleasure will positively associate with customer satisfaction.

H5b. Arousal will positively associate with customer satisfaction.

H6. Emotion will positively associate with relationship commitment.

H6a. Pleasure will positively associate with relationship commitment.

H6b. Arousal will positively associate with relationship commitment.

2.4. Perceived critical mass

Critical mass was originally defined by Oliver, Marwell, and Teixeira (1985) as "a small segment of the population that chooses to make big contributions to the collective action." With the development of Internet, critical mass has become a significant predictor of Internet application usage behavior. Lou (2000) indicated that critical mass is highly related to the interaction between peers in groupware adoption context. Hsu and Lu (2004) examined the relationship between critical mass and the players' usage intention of online games and suggested significant findings in this relationship. Li, Chau, and Lou (2005) adopted critical mass to weigh the intention to use an instant messaging service. They applied the perceived number of users to evaluate the usage of an instant messaging service. Sledgianowski and Kulviwat (2009) examined the role of critical mass in social network site adoption behavior. Wu, Vassileva, and Zhao (2017) examined the influence of push effect (perceived risk), mooring effect (switching cost) and pull

effect (critical mass) on switching intention for cloud storage service. The empirical findings suggested that perceived critical mass is a significant predictor of switching intention as higher value might be perceived with the increasing number of users in online services.

In general, critical mass theory is important in explaining the adoption and use of interactive communication media because the value of the network increases with the number of the media users (Lou, Luo, & Strong, 2000). Thus, achieving a critical mass of active users will help accelerate the collective acceptance of interactive media (Van Slyke, Ilie, Lou, & Stafford, 2007) and influence the technology adoption behavior (Shen, Cheung, & Lee, 2013; Wu et al., 2017).

Based on the above literature, current study proposed the following hypotheses:

H7. Perceived critical mass will positively associate with customer satisfaction.

H8. Perceived critical mass will positively associate with relationship commitment.

2.5. Loyalty intention

Customer loyalty intention reflects favorable attitudes toward the brand or organization which is the result of the individual's beliefs that the quantity of value received from consuming a product or service is greater than the value of non-consuming (Roger, 1996; Srinivasan, Anderson, & Ponnarolu, 2002). A loyal customer was identified as showing repeated purchase behavior and will actively promote the firms' products and services to other customers (Casaló, Flavián, & Guinalfú, 2008). Creating loyal customers are vital to the business as a variety of positive effect contributed by loyal customers was observed by prior studies. For example, Dick and Basu (1994) had pointed out that loyal customers will spread positive word of mouth (WOM) for the company, and will be willing to pay higher cost to purchase the product. Empirical finding from Silvia, Enrique, and Daniela (2017) also indicated that people's access to the brands' Facebook fan pages can satisfy their needs of understanding, which in turn resulted in more active participation. Chen, Yang, Chang, and Lee (2017) found that positive WOM exerts positive influence on brand loyalty in Facebook Fan Pages. In general, online customers' loyalty intention might be influenced by a variety of different factors such as customer satisfaction and relationship commitment.

The first important factor is *customer satisfaction* which refers to one's overall evaluation based on the total purchase and consumption experience with a good or service over time (Bolton, 1998; Kim & Stoel, 2004; Sanchez-Franco, 2009; Shiao & Luo, 2012; Valle & Wallendorf, 1977). The relationship between satisfaction and loyalty intention has been mentioned in prior studies. For example, Baldinger and Rubinson (1996) found that loyal customers tend to stay loyal if their attitude towards a brand is positive. Yüksel and Yüksel (2007) also suggested that tourist shopping satisfaction will positively influence their loyalty intentions.

Another potential factor in influencing loyalty intention is *relationship commitment*, which was defined as "an enduring desire to maintain a valued relationship" and one essential ingredient for successful long-term relationships (Ellen Garbarino, 1999). More precisely, the concept of relationship commitment tried to measure whether an individual tended to continue with an established relationship. It reflected an individual's internal representation of dependence on the relationship, including the psychological attachment. The relationship between relationship commitment and loyalty intention was discussed by prior studies. For example, Bart, Timothy, Bruce, Lerzan, and Edward (2014) and Yean, K, and Satyabhusan (2015) examine commitment-loyalty relationships in financial service industry, while Hur, Park, and Kim (2010) discussed similar issue in mobile service industry. Further, Chang and Fan (2017) examined the predictors of continued intention

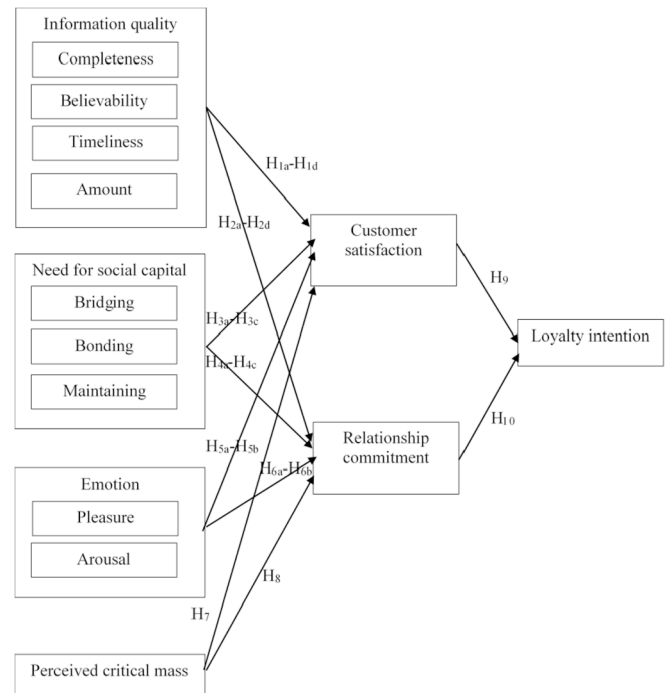


Fig. 1. Research framework and hypotheses.

to use Facebook Fan Page in fast-fashion industry. The results indicated that affective commitment is the most influential factor of continued intention to use.

Based on the above literature, current study proposed the following hypotheses:

H9. Customer satisfaction will positively associate with loyalty intention.

H10. Relationship commitment will positively associate with loyalty intention

3. Research method

3.1. Research framework

This study aimed at investigating the predictors of consumers' loyalty intention in online brand community. The research framework was proposed in Fig. 1.

Four factors which included Information Quality, Need for online social capital, Emotion and Perceived critical mass on the virtual brand community were hypothesized to show influence on Customer Satisfaction and Relationship Commitment, which is in turn expected to influence loyalty intention. Based on the research framework and the literature, this study proposed the following hypotheses as illustrated in Table 2:

3.2. Research design

A scenario-based survey was conducted to validate the hypotheses. Two product types were selected for comparing the customers' responses in different online brand community. Search and experience products based on Nelson (1970) were selected through pre-test process. Seventeen products were identified as either search or experience products from prior studies (Axelsson, 2008; Girard & Dion, 2010; Girard et al., 2002, 2003). Sport wristband ($M_{\text{search}} = 3.71$, $M_{\text{experience}} = 3.18$, $T = 2.186$, $p < 0.05$) and Facial mask ($M_{\text{search}} = 2.84$, $M_{\text{experience}} = 4.08$, $T = -4.445$, $p < 0.001$) were

Table 2
Research hypotheses.

No.	Hypotheses	References
H ₁	Information quality will positively associate with customer satisfaction.	(Aggarwal & Rahul, 2017; Kim & Niehm, 2009; Wang & Strong, 1996)
H _{1a}	Completeness of information will positively associate with customer satisfaction.	
H _{1b}	Believability of information will positively associate with customer satisfaction.	
H _{1c}	Timeliness of information will positively associate with customer satisfaction.	
H _{1d}	Appropriate amount of information will positively associate with customer satisfaction.	
H ₂	Information quality will positively associate with relationship commitment.	(Aggarwal & Rahul, 2017; Kim & Niehm, 2009; Wang & Strong, 1996)
H _{2a}	Completeness of information will positively associate with relationship commitment.	
H _{2b}	Believability of information will positively associate with relationship commitment.	
H _{2c}	Timeliness of information will positively associate with relationship commitment.	
H _{2d}	Appropriate amount of information will positively associate with relationship commitment.	
H ₃	Need for social capital will positively associate with customer satisfaction.	(Ellison et al., 2007; Huang & Liu, 2017; Qian et al., 2017)
H _{3a}	Need for bridging social capital will positively associate with customer satisfaction.	
H _{3b}	Need for bonding social capital will positively associate with customer satisfaction.	
H _{3c}	Need for maintaining social capital will positively associate with customer satisfaction.	
H ₄	Need for social capital will positively associate with relationship commitment.	(Ellison et al., 2007; Phua et al., 2017; Qian et al., 2017)
H _{4a}	Need for bridging social capital will positively associate with relationship commitment.	
H _{4b}	Need for bonding social capital will positively associate with relationship commitment.	
H _{4c}	Need for maintaining social capital will positively associate with relationship commitment.	
H ₅	Emotion will positively associate with customer satisfaction.	(Y.-K. Lee et al., 2009; Oliver, 1994; Sui & Baloglu, 2003)
H _{5a}	Pleasure will positively associate with customer satisfaction.	
H _{5b}	Arousal will positively associate with customer satisfaction.	
H ₆	Emotion will positively associate with relationship commitment.	(Reydet & Carsana, 2017; Timothy et al., 2017)
H _{6a}	Pleasure will positively associate with relationship commitment.	
H _{6b}	Arousal will positively associate with relationship commitment.	
H ₇	Perceived critical mass will positively associate with customer satisfaction.	(Shen et al., 2013; Sledgianowski & Kulviwat, 2009; Van Slyke et al., 2007; Wu et al., 2017)
H ₈	Perceived critical mass will positively associate with relationship commitment.	
H ₉	Customer satisfaction will positively associate with loyalty intention.	(Chen et al., 2017; Silvia et al., 2017; Yüksel & Yüksel, 2007)
H ₁₀	Relationship commitment will positively associate with loyalty intention	(Bart et al., 2014; Chang & Fan, 2017; Chen et al., 2017; Yean et al., 2015)

identified as search and experience product respectively based on the data from thirty-eight valid sample. Two online brand communities were then selected to represent the sport wristband and facial mask product types: Xiaomitaiwan (416,701 fans) and MyBeautyDiary (125,963 fans) Facebook fanpage.

3.3. Sampling and measurement

Participants in this study were recruited from two major social network platform: Facebook and PTT (Post Text Table), which is the largest BBS (Bulletin Board System) platform in Taiwan. There are 627 participants in total submitted their responses to the online questionnaire.

The measurements were all adopted from prior studies and slightly adjusted to fit the research context of this study. The Information Quality measurement was mainly adopted from Lee et al. (2002) which included for sub-dimensions: Completeness, Believability, Timeliness, and Appropriate Amount. Measurement of Need for social capital developed by Chi (2011) which was comprised of three sub-dimensions (Bridging, Bonding and Maintained social capital) was used in this study. Further, Emotion and customer satisfaction was measured by items adapted from Bigné, Andreu, and Gnoth (2005). Perceived critical mass was measured by five items adapted from Shen et al. (2013). Measurement of Relationship Commitment was measured by using three items from Li et al. (2005). Finally, Loyalty intention was measured by the items adopted by Chiu, Chang, Cheng, and Fang (2009), Kim and Niehm (2009).

The procedure of online questionnaire was described as follows. The

participants who voluntarily click into the online questionnaire will be randomly directed to one of the two online brand communities (Xiaomitaiwan or MyBeautyDiary Facebook fanpage) selected by this study before filling out the online questionnaire. Participant's responses toward 7 dimensions (information quality, need for online social capital, emotions, perceived critical mass, satisfaction, relationship commitment, and loyalty intention) were then collected based on five-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). Finally, demographics were collected for data analysis.

4. Results

4.1. Demographics statistics

The data collected in this study was analyzed by using SPSS. The demographics from 560 valid data were shown in Table 3. Among all the respondents, 30.5% of them were male and most of them aged between 25 and 44 years old.

Participants' Facebook usage behavior was depicted in Table 4 which indicated that most of the participants spent 1–3 h in Facebook and most of them access Facebook through mobile devices everyday. Major activities in Facebook include search and share information, post video and play games.

4.2. Validity and reliability

All the questionnaire items were subjected to a principal components factor analysis, followed by varimax rotation. The validity of

Table 3
Demographics.

Variables	Xiaomitaiwan		MyBeautyDiary.taiwan		Total	
	Number	%	Number	%	Number	%
Gender						
Male	122	45.2%	49	16.9%	171	30.5%
Female	148	54.8%	241	83.1%	389	69.5%
Age						
15–24	1	0.4%	1	0.3%	2	0.4%
25–34	165	61.1%	153	52.8%	318	56.8%
35–44	83	30.7%	121	41.7%	204	36.4%
45–54	15	5.6%	12	4.1%	27	4.8%
55–64	4	1.5%	2	0.7%	6	1.1%
Beyond 65	2	0.7%	1	0.3%	3	0.5%
Education level						
Junior high school or below	3	1.1%	–	–	3	0.5%
Senior high school	4	1.5%	16	5.5%	20	3.6%
Bachelor's degree	147	54.4%	181	62.4%	328	58.6%
Master's degree or above	116	43.0%	93	32.1%	209	37.3%

items in each construct are acceptable by achieving 0.6 of factor loadings. Further, reliability measures the stability of the scale. The reliability of the scales in this study is shown in Table 5 which indicated that all are acceptable (Hair, Anderson, Tatham, & Black, 1998) of Cronbach's alpha higher than 0.7.

4.3. Hypotheses testing

Linear regression analysis was conducted to examine the relationships among variables in this study. Table 6 showed the regression model on customer satisfaction of online brand communities. The adjusted R-square for all the predictors on customer satisfaction is 0.689 for Xiaomitaiwan and 0.711 for MyBeautyDiary.taiwan, indicated that the predictors in this study collectively explain high proportion of satisfaction.

The results showed significant relationship between information quality, social capital, emotion, perceived critical mass and customer satisfaction in two online brand communities. Information completeness, bridging social capital, pleasure and perceived critical mass are significant predictors of customer satisfaction in both online brand communities in which pleasure is the most important factor on satisfaction. Further, arousal significantly influence satisfaction only in Xiaomitaiwan community, while information believability influences satisfaction only for facial mask consumers.

Regression model on relationship commitment was further conducted and the result was illustrated in Table 7. All the independent variables explained 45.2% and 67.3% of the relationship commitment,

Table 4
User behavior on Facebook.

	Xiaomitaiwan	MyBeautyDiary.taiwan	Total
Hours using Facebook per time	48.5% (1–3 h)	36.6% (less than 1 h)	41.6% (1–3 h)
Device used to access Facebook	79.3% (mobile device)	81.4% (mobile device)	80.4% (mobile device)
Days in Facebook per week	81.9% (every day)	77.6% (every day)	79.6% (every day)
Frequency in using Facebook per day	54.4% (> 5 times)	51% (> 5 times)	52.7% (> 5 times)
Major activities on FB			
Discover new brand, product or service	14.4%	30.7%	22.9%
Search information, purchasing	9.3%	43.8%	27.1%
Share information (e.g. share post, recommend the product or service)	12.6%	18.3%	15.5%
Post video or link on Facebook	6.3%	6.6%	6.4%
Play Facebook games	4.1%	14.5%	9.5%

Table 5
Validity and Reliability of the scales in this study.

Constructs	Sub-dimensions	Factor loadings	Reliability
Information quality	Completeness	0.601–0.807	0.913
	Believability	0.817–0.833	0.877
	Timeliness	0.733–0.826	0.705
Social capital	Bridging	0.767–0.868	0.912
	Bonding	0.687–0.826	0.848
	Maintained	0.774–0.836	0.855
Emotion	Pleasure	0.713–0.839	0.903
	Arousal	0.617–0.828	0.839
Perceived critical mass	–	0.758–0.862	0.888
Customer satisfaction	–	0.760–0.872	0.862
Relationship commitment	–	0.897–0.924	0.900
Loyalty intention	–	0.856–0.910	0.908

Table 6
Regression model on Customer Satisfaction.

Brand community		Xiaomitaiwan	MyBeautyDiary.taiwan
Predictors		β ($R^2 = 0.689$)	β ($R^2 = 0.711$)
Information quality	Completeness	0.245*	0.200*
	Believability	0.48	0.168*
	Timeliness	–0.07	0.035
Social capital	Bridging	0.086*	0.199*
	Bonding	0.063	0.047
	Maintained	0.003	–0.047
Emotion	Pleasure	0.310*	0.265*
	Arousal	0.109*	–0.009
Perceived critical mass		0.269*	0.233*

* Significant.

Table 7
The regression model on Relationship Commitment.

Brand community		Xiaomitaiwan	MyBeautyDiary.taiwan
Variables		β ($R^2 = 0.452$)	β ($R^2 = 0.673$)
Information quality	Completeness	0.329*	0.342*
	Believability	–0.020	0.271*
	Timeliness	–0.045	–0.032
Social capital	Bridging	0.287*	0.325*
	Bonding	–0.025	–0.008
	Maintained	–0.041	–1.117*
Emotion	Pleasure	0.052	0.071
	Arousal	0.176*	–0.025
Perceived critical mass		0.138*	0.064

* Significant.

suggesting that important factors were comprehensively considered in this study.

As indicated, information completeness and bridging social capital are significant predictors of relationship commitment for both brand

Table 8
The regression model on Loyalty Intention.

Brand community	Xiaomitaiwan	MyBeautyDiary.taiwan
Variables	β ($R^2 = 0.507$)	β ($R^2 = 0.581$)
Customer satisfaction	0.495*	0.519*
Relationship commitment	0.288*	0.300*

* Significant.

communities in which the information completeness is a more important indicator than social capital. Further, perceived critical mass significantly predicts commitment only among wristband consumers, while information believability and maintained social capital are significant predictors of relationship commitment only for facial mask consumers.

The relationships among customer satisfaction, relationship commitment and loyalty intention were also examined by regression analysis. The results in Table 8 showed that the regression models are significant among two brand communities (adjusted r-square = 0.507 for Xiaomitaiwan and 0.581 for mybeautydiary. taiwan). In addition, both of the predictors will significantly influence consumers' loyalty intention in which customer satisfaction is a more important indicator on loyalty than relationship commitment.

5. Discussion and conclusion

The objective of this study is to examine the predictors of consumers' loyalty intention in online brand communities in Facebook. Findings revealed some important predictors of consumer satisfaction and relationship commitment, which in turn significantly influence the loyalty intention. Data analysis results from this study was summarized and discussed as follows.

First, information completeness is a significant and most important predictor of consumers' satisfaction and relationship commitment across two online brand communities ($\beta = 0.329^*$ and $\beta = 0.342^*$ for wrist band and facial mask communities respectively). This finding suggested that provide comprehensive brand and product information through online communities is one of the key issue in online brand community management. This finding is supported by prior studies which pointed out that information search is one of the major activities for online consumers before making purchase decisions (Ho, Lin, & Chen, 2012; Klein & Ford, 2003; Rha, Montalto, & Widdows, 2003) both for search and experience products (Bei, Chen, & Widdows, 2004). The second significant predictor of customer satisfaction and relationship commitment is the need for bridging social capital, which indicated the consumers' need to get connection with new people is one of the major reasons that people build relationship with online brand communities. This finding is consistent with the general perceptions that Facebook users are more likely to connect with their real-life friends and family members (Ellison et al., 2007) and thus the bringing social capital is an important factor of satisfaction and relationship commitment for Facebook users.

Third, a pleasure emotional experience showed significant influence on customer satisfaction in Facebook Fan Pages. This is consistent with prior literature which suggested positive relationship between emotion and satisfaction in either offline (Lee et al., 2009) or online (Mazaheri et al., 2014) contexts. In addition, pleasure showed to be more influential than arousal on customer satisfaction for both wristband (search product) and facial mask (experience product). Thus, the online brand communities are suggested to understand the factors that cause customers' positive emotions in terms of pleasantness in order to gain satisfied customers, which in turn results in higher loyalty intentions. Results from Tremayne (2017) suggested that Facebook use is mainly entertainment purpose, in which 40% of the posts are entertainment

oriented. In this regard, it is not surprised that pleasure appeared to be a significant emotional influence of customer satisfaction in Facebook.

Finally, perceived critical mass is also a significant predictor of customer satisfaction for both online brand communities ($\beta = 0.269^*$ and $\beta = 0.233^*$ for wrist band and facial mask communities respectively). Perceived critical mass represent social influences and has been proved to be an important predictor in different contexts such as technology adoption (Lou, 2000), social network (Shen et al., 2013; Sledgianowski & Kulviwat, 2009), and online group buying (Lim, 2014) studies.

Although the above discussion revealed some major predictors on customer satisfaction and relationship commitment for both wristband and facial mask online brand communities, there are still other influential variables specifically for different online communities. First, information believability is significant on both satisfaction and relationship commitment only in facial mask brand communities. This corresponds to the finding in prior studies that consistently showed the information credibility (i.e., believability) is more important for experience product than for search products (Bae & Lee, 2011; Park & Lee, 2009). Another predictor show negative influence on relationship commitment in facial mask online community is need for maintained social capital, which refers to the social connections in an online social network after physically disconnecting from it such as high school acquaintances. One of the possible reasons might be that facial mask is a skin care product that keeps the customer looks young and people who disconnected from acquaintances in their school life may not want to re-connect in facial mask online communities as they become aging. Finally, arousal revealed to be significant predictor of satisfaction and relationship commitment in wristband virtual community. In other words, if the information provided through the online community makes people more aroused (i.e., cheerful, surprised ...), more positive responses will be resulted, but only for search products. We postulated that the product functions and attributes to be described and showed in online communities are more possible to attract attention and resulted in excited responses as the product high in search attribute are more easily to be demonstrated, and thus in turn resulted in more positive responses. While the characteristics and attributes for experience products such as facial mask are more difficult to be delivered through online brand communities and thus the arousal-satisfaction and arousal-relationship commitment connections are more difficult to build. Prior studies based on innovation diffusion theory suggested that the observability is one of the key factors of new technology adoption (Teo, Tan, & Wei, 1995). The observability refers to the degree to which the technology is observable and can be communicated to others, which is congruent with the definition of search products.

Overall, online brand communities can benefit from current study to develop appropriate strategies to build customer loyalty for different product types. First, the information provided should be comprehensive and provide pleasure value for Facebook users to result in more positive responses. In addition, most of the consumers who are high in bridging social capital show higher satisfaction and commitment. Thus, the online brand communities such as Facebook should understand that people participate the virtual community because they want to connect to new people who share similar interests. Any mechanism that links people with some new resources will bring more opportunities for building relationships with customers. Third, information believability is specifically more important for experience products, while more aroused design and information would be key factor for search products. Therefore, different strategies should be developed based on the product type for each online brand community.

References

- Abraham, R. (1999). The impact of emotional dissonance on organizational commitment and intention to turnover. *Journal of Psychology*, 133(4), 441–455.
- Aggarwal, A., & Rahul, M. (2017). Impact of perceived usability and perceived

- information quality on Indian consumer purchase intentions in online shopping: Implication of TAM and S-O-R theory. *International Journal of Technology Transfer and Commercialisation*, 15(2), 160–183.
- Axelsson, K. (2008). Exploring relationships between products characteristics and B2C interaction in electronic commerce. *Journal of Theoretical and Applied Electronic Commerce Research*, 3(2), 1–17.
- Bae, S., & Lee, T. (2011). Product type and consumers' perception of online consumer reviews. *Electronic Markets*, 21(4), 255–266.
- Baldinger, A. L., & Rubinson, J. (1996). Brand loyalty: The link between attitude and behavior. *Journal of Advertising Research*, 36(6), 22–35.
- Bart, L., Timothy, L. K., Bruce, C., Lerzan, A., & Edward, C. M. (2014). A longitudinal examination of customer commitment and loyalty. *Journal of Service Management*, 25(1), 75–100.
- Bei, L.-T., Chen, E. L., & Widdows, R. (2004). Consumers' online information search behavior and the phenomenon of search vs. Experience products. *Journal of Family and Economic Issues*, 25(4), 449–467.
- Benedikt, J., & Werner, K. (2012). How to transform consumers into fans of your brand. *Journal of Service Management*, 23(3), 344–361.
- Bigné, J. E., Andreu, L., & Gnoth, J. (2005). The theme park experience: An analysis of pleasure, arousal and satisfaction. *Tourism Management*, 26(6), 833–844.
- Bolton, R. N. (1998). A dynamic model of the duration of the customer's relationship with a continuous service provider: The role of satisfaction. *Marketing Science*, 17(1), 45–65.
- Casaló, L. V., Flavián, C., & Guinalú, M. (2008). The role of satisfaction and website usability in developing customer loyalty and positive word-of-mouth in the e-banking services. *International Journal of Bank Marketing*, 26(6), 399–417.
- Chae, M., Kim, J., Kim, H., & Ryu, H. (2002). Information quality for mobile Internet services: A theoretical model with empirical validation. *Electronic Markets*, 12(1), 38–46.
- Chang, S.-W., & Fan, S.-H. (2017). Cultivating the brand-customer relationship in Facebook fan pages: A study of fast-fashion industry. *International Journal of Retail & Distribution Management*, 45(3), 253–270.
- Chang, A., Hsieh, S. H., & Tseng, T. H. (2013). Online brand community response to negative brand events: The role of group eWOM. *Internet Research*, 23(4), 486–506.
- Chen, G.-L., Yang, S.-C., Chang, R.-M., & Lee, T.-L. (2017). The antecedents of brand loyalty building in fan page of Facebook. *Proceedings of the 4th multidisciplinary international social networks conference* (pp. 1–9). Bangkok, Thailand: ACM.
- Chi, H.-H. (2011). Interactive digital advertising vs. Virtual brand community. *Journal of Interactive Advertising*, 12(1), 44–61.
- Chiu, C. M., Chang, C. C., Cheng, H. L., & Fang, Y. H. (2009). Determinants of customer repurchase intention in online shopping. *Online Information Review*, 33(4), 761–784.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120.
- De Vries, L., Gensler, S., & Leeflang, P. S. (2012). Popularity of brand posts on brand fan pages: An investigation of the effects of social media marketing. *Journal of Interactive Marketing*, 26(2), 83–91.
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30.
- DeLone, William H., & McLean, Ephraim R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research*, 3(1), 60–95.
- Dick, A. S., & Basu, K. (1994). Customer loyalty: Toward an integrated conceptual framework. *Journal of the Academy of Marketing Science*, 22(2), 99–113.
- Donovan, R. J., & Rossiter, J. R. (1982). Store atmosphere: An environmental psychology approach. *Journal of Retailing*, 58(1), 34.
- Donovan, R. J., & Rossiter, J. R. (1994). Store atmosphere and purchasing behavior. *Journal of Retailing*, 70(3), 283–294.
- Ellen Garbarino, M. S. J. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing*, 63(2), 70–87.
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook “friends:” social capital and college students' use of online social network sites. *Journal of Computer-mediated Communication*, 12(4), 1143–1168.
- Girard, T., & Dion, P. (2010). Validating the search, experience, and credence product classification framework. *Journal of Business Research*, 63(9–10), 1079–1087.
- Girard, T., Korgaonkar, P., & Silverblatt, R. (2003). Relationship of type of product, shopping orientations, and demographics with preference for shopping on the Internet. *Journal of Business and Psychology*, 18(1), 101–120.
- Girard, T., Silverblatt, R., & Korgaonkar, P. (2002). Influence of product class on preference for shopping on the Internet. *Journal of Computer-mediated Communication*, 8(1) 0-0.
- Goodhue, Dale L., & Thompson, Ronald L. (1995). Task-technology fit and individual performance. *MIS Quarterly*, 213–236.
- Hair, J. J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*. New Jersey: Prentice Hall.
- Holbrook, M. B., & Batra, R. (1987). Assessing the role of emotions as mediators of consumer responses to advertising. *Journal of Consumer Research*, 14(3), 404–420.
- Ho, C.-I., Lin, M.-H., & Chen, H.-M. (2012). Web users' behavioural patterns of tourism information search: From online to offline. *Tourism Management*, 33(6), 1468–1482.
- Hsu, C.-L., & Lu, H.-P. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience. *Information & Management*, 41(7), 853–868.
- Huang, L. V., & Liu, P. L. (2017). Ties that work: Investigating the relationships among coworker connections, work-related Facebook utility, online social capital, and employee outcomes. *Computers in Human Behavior*, 72, 512–524.
- Hur, W.-M., Park, J., & Kim, M. (2010). The role of commitment on the customer benefits-loyalty relationship in mobile service industry. *Service Industries Journal*, 30(14), 2293–2309.
- Jarke, Matthias, & Vassiliou, Yannis (1997). Data warehouse quality: a review of the DWQ project. *Invited paper, proc. 2nd conference on information quality*. Cambridge: MIT.
- Kaye, L. K., Kowert, R., & Quinn, S. (2017). The role of social identity and online social capital on psychosocial outcomes in MMO players. *Computers in Human Behavior*, 74, 215–223.
- Katerattanakul, Pairin, & Siau, Keng (1999). Measuring information quality of web sites: development of an instrument. *Proceedings of the 20th international conference on Information Systems*. Charlotte, NC, USA: Association for Information Systems.
- Kim, H., & Niehm, L. (2009). The impact of website quality on information quality, value, and loyalty intentions in apparel retailing. *Journal of Interactive Marketing*, 23(3), 221.
- Kim, S., & Stoel, L. (2004). Apparel retailers: Website quality dimensions and satisfaction. *Journal of Retailing and Consumer Services*, 11(2), 109–117.
- Klein, L. R., & Ford, G. T. (2003). Consumer search for information in the digital age: An empirical study of prepurchase search for automobiles. *Journal of Interactive Marketing*, 17(3), 29–49.
- Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, 1(3), 141–169.
- Lee, Y.-K., Back, K.-J., & Kim, J.-Y. (2009). Family restaurant brand personality and its impact on customer's eMotion, satisfaction, and brand loyalty. *Journal of Hospitality & Tourism Research*, 33(3), 305–328.
- Lee, D., Kim, H. S., & Kim, J. K. (2011). The impact of online brand community type on consumer's community engagement behaviors: Consumer-created vs. marketer-created online brand community in online social-networking web sites. *Cyberpsychology, Behavior, and Social Networking*, 14(1–2), 59–63.
- Lee, Y. W., Strong, D. M., Kahn, B. K., & Wang, R. Y. (2002). AIMQ: A methodology for information quality assessment. *Information & Management*, 40(2), 133–146.
- Li, D., Chau, P. Y. K., & Lou, H. (2005). Understanding individual adoption of instant messaging: An empirical investigation. *Journal of the Association for Information Systems*, 6(4), 102–129.
- Lim, W. M. (2014). Sense of virtual community and perceived critical mass in online group buying. *Journal of Strategic Marketing*, 22(3), 268–283.
- Lou, H. (2000). Perceived critical mass effect on groupware acceptance. *European Journal of Information Systems*, 9(2), 91.
- Lou, H., Luo, W., & Strong, D. (2000). Perceived critical mass effect on groupware acceptance. *European Journal of Information Systems*, 9(2), 91–103.
- Mazaheri, E., Richard, M. O., & Laroche, M. (2012). The role of emotions in online consumer behavior: A comparison of search, experience, and credence services. *Journal of Services Marketing*, 26(7), 535–550.
- Mazaheri, E., Richard, M. O., Laroche, M., & Ueltschy, L. C. (2014). The influence of culture, emotions, intangibility, and atmospheric cues on online behavior. *Journal of Business Research*, 67(3), 253–259.
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. MA: MIT press Cambridge.
- Nelson, P. (1970). Information and consumer behavior. *Journal of Political Economy*, 78(2), 311.
- Oliver, R. L. (1994). Conceptual issues in the structural analysis of consumption emotion, satisfaction, and quality: Evidence in a service setting. *Advances in Consumer Research*, 21(1), 16–22.
- Oliver, P., Marwell, G., & Teixeira, R. (1985). A theory of the critical mass. I. Interdependence, group heterogeneity, and the production of collective action. *American Journal of Sociology*, 91(3), 522–556.
- Park, C., & Lee, T. M. (2009). Information direction, website reputation and eWOM effect: A moderating role of product type. *Journal of Business Research*, 62(1), 61–67.
- Phua, J., Jin, S. V., & Kim, J. (2017). Uses and gratifications of social networking sites for bridging and bonding social capital: A comparison of Facebook, twitter, Instagram, and Snapchat. *Computers in Human Behavior*, 72, 115–122.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.
- Qian, H., Xiayu, C., Xiaojuan, O. C., M, D. R., & Zhongsheng, H. (2017). Understanding buyers' loyalty to a C2C platform: The roles of social capital, satisfaction and perceived effectiveness of e-commerce institutional mechanisms. *Information Systems Journal*, 27(1), 91–119.
- Resnick, P. (2001). Beyond bowling together: Sociotechnical capital. In J. M. Carroll (Vol. Ed.), *HCI in the new millennium: Vol. 77*, (pp. 247–272). Boston: Addison-Wesley.
- Reydet, S., & Carsana, L. (2017). The effect of digital design in retail banking on customers' commitment and loyalty: The mediating role of positive affect. *Journal of Retailing and Consumer Services*, 37, 132–138.
- Rha, J. Y., Montalto, C. P., & Widdows, R. (2003). Evaluating the impact of the Internet on consumers' information search. *The proceedings of the 49th annual conference on consumer interests annual*, Atlanta, GA.
- Richins, M. L. (1997). Measuring emotions in the consumption experience. *Journal of Consumer Research*, 24(2), 127–146.
- Roger, H. (1996). The relationships of customer satisfaction, customer loyalty, and profitability: An empirical study. *International Journal of Service Industry Management*, 7(4), 27–42.
- Russell, J. A., & Pratt, G. (1980). A description of the affective quality attributed to environments. *Journal of Personality and Social Psychology*, 38(2), 311.
- Russell, J. A., Ward, L. M., & Pratt, G. (1981). Affective quality attributed to environments: A factor Analytic study. *Environment and Behavior*, 13(3), 259–288.
- Sanchez-Franco, M. (2009). The Moderating Effects of Involvement on the Relationships Between Satisfaction, Trust and Commitment in e-Banking. *Journal of Interactive Marketing*, 23(3), 247.
- Schamari, J., & Schaefers, T. (2015). Leaving the home turf: How brands can use webcare on consumer-generated platforms to increase positive consumer engagement. *Journal of Interactive Marketing*, 30, 20–33.

- Shen, X.-L., Cheung, C. M. K., & Lee, M. K. O. (2013). Perceived critical mass and collective intention in social media-supported small group communication. *International Journal of Information Management*, 33(5), 707–715.
- Shiau, W.-L., & Luo, M. M. (2012). Factors affecting online group buying intention and satisfaction: A social exchange theory perspective. *Computers in Human Behavior*, 28(6), 2431–2444.
- Silvia, S.-B., Enrique, B., & Daniela, B. (2017). m-WOM in a brand's Facebook fan page. *Online Information Review*, 41(7), 936–953.
- Skoric, M. M., & Kwan, G. C. E. (2011). Platforms for mediated sociability and online social capital: The role of Facebook and massively multiplayer online games. *Asian Journal of Communication*, 21(5), 467–484.
- Sledgianowski, D., & Kulviwat, S. (2009). Using social network sites: The effects of playfulness, critical mass and trust in a hedonic context. *Journal of Computer Information Systems*, 49(4), 74–83.
- Smith, A. K., & Bolton, R. N. (2002). The effect of customers' emotional responses to service failures on their recovery effort evaluations and satisfaction judgments. *Journal of the Academy of Marketing Science*, 30(1), 5–23.
- Srinivasan, S. S., Anderson, R., & Ponnnavolu, K. (2002). Customer loyalty in e-commerce: An exploration of its antecedents and consequences. *Journal of Retailing*, 78(1), 41–50.
- Sui, J. J., & Baloglu, S. (2003). The role of emotional commitment in relationship marketing: An empirical investigation of a loyalty model for casinos. *Journal of Hospitality & Tourism Research*, 27(4), 470–489.
- Teo, H.-H., Tan, B., & Wei, K.-K. (1995). *Innovation diffusion theory as a predictor of adoption intention for financial EDI*. International Conference on Information Systems (ICIS).
- Timothy, K., Joan, B., Sabine, B., L, B. H., Alexander, B., Julija, D., et al. (2017). The interplay of customer experience and commitment. *Journal of Services Marketing*, 31(2), 148–160.
- Tremayne, M. (2017). The Facebook agenda: Global social media news characteristics. *American Communication Journal*, 19(1).
- Valle, V., & Wallendorf, M. (1977). Consumers' attributions of the cause of their product satisfaction and dissatisfaction. *Consumer Satisfaction, Dissatisfaction, and Complaining Behavior*, 26–30.
- Van Slyke, C., Ilie, V., Lou, H., & Stafford, T. (2007). Perceived critical mass and the adoption of a communication technology. *European Journal of Information Systems*, 16(3), 270–283.
- Wand, Yair, & Wang, Richard Y. (1996). Anchoring data quality dimensions in ontological foundations. *Communications of the ACM*, 39.11, 86–95.
- Wang, R. Y., & Strong, D. M. (1996). Beyond accuracy: What data quality means to data consumers. *Journal of Management Information Systems*, 12(4), 5–33.
- Williams, D. (2006). On and off the 'net: Scales for social capital in an online era. *Journal of Computer-mediated Communication*, 11(2), 593–628.
- Wu, K., Vassileva, J., & Zhao, Y. (2017). Understanding users' intention to switch personal cloud storage services: Evidence from the Chinese market. *Computers in Human Behavior*, 68, 300–314.
- Yean, C. J. C., K, M. N., & Satyabhusan, D. (2015). The impact of relational bonding on intention and loyalty: The mediating role of the commitment foci in service relationships. *Journal of Hospitality and Tourism Technology*, 6(3), 203–227.
- Yüksel, A., & Yüksel, F. (2007). Shopping risk perceptions: Effects on tourists' emotions, satisfaction and expressed loyalty intentions. *Tourism Management*, 28(3), 703–713.
- Zhang, M., Guo, L., Hu, M., & Liu, W. (2017). Influence of customer engagement with company social networks on stickiness: Mediating effect of customer value creation. *International Journal of Information Management*, 37(3), 229–240.
- Zmud, Robert W. (1978). An empirical investigation of the dimensionality of the concept of information. *Decision Sciences*, 9(2), 187–195.