



## Forming relationship commitments to online communities: The role of social motivations

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### ARTICLE INFO

#### Article history:

Available online 25 November 2011

#### Keywords:

Online community  
Social motives  
Social interaction ties  
Commitment

### ABSTRACT

Although administrators of online communities (OCs) may focus on improving their OCs through upgrading technology and enhancing the usability of their OCs to attract additional users, the level of OC participation may be associated with social motives. The purpose of this study is to understand how social motivations (that is, network externalities and social norms) affect members committed to OCs. This study tests the hypotheses on data collected from 396 undergraduate students. Data analyses show that network externalities and social norms directly influence social interaction ties, which subsequently results in commitment toward a community. Social norms also directly influence relationship commitments to a community. The results provide insights into how social motivations lead to commitment to an OC, reminding OC administrators to encourage member commitment to the OC from the perspective of social motivations.

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### 1. Introduction

Online communities (OCs) are an important resource for people with various interests, goals, and needs (Kim, Park, & Jin, 2008). In contrast to participants of a physical community, who physically gather at the same place and time, OC members are not physically colocated; thus, technology is used as the primary method of communication (Chu, 2009). However, regardless of whether the location is online or physical, a community is primarily based on a mutual interest among the participants. Because Internet media are used increasingly to share ideas and communicate, the global number of OCs has risen rapidly in recent years (Smedberg, 2008). Thus, the growth of online social networking sites, such as Facebook, YouTube, and Twitter (Rizavi, Ali, & Rizavi, 2011), has created a new world of communication (Cheung, Chiu, & Lee, 2011). Despite significant growth in the number of OCs, OC administrators have difficulty obtaining member commitment (Gupta & Kim, 2007). Relatively few communities retain sustained, active use among existing members.

Member commitment to the OC is vital for administrators (Gupta, Kim, & Shin, 2010). Therefore, from a managerial perspective, OC administrators aim to encourage active member participation, create greater site stickiness (Misra, Mukherjee, & Peterson,

2008), and develop member commitment to the OC. Accordingly, researchers have investigated how to retain OC members. For example, one researcher suggested that social interaction ties influence people's intentions to remain in a professional OC, where members share an interest and expertise in a specific topic (Chen, 2007). However, antecedents that influence social interaction ties in OCs should be explored.

Although a previous study indicated that social norms and network externalities motivate the adoption and valuation of communication technology, such as e-mail and instant messaging (Dickinger, Arami, & Meyer, 2008), comprehension of the influence of network externalities and social norms on member participation and commitment to an OC remains limited. Thus, the aim of this study is to determine how encouraging active interaction between current members develops commitment to an OC. This study integrates social motivations as the antecedents to social interaction ties, and examines the links among network externalities, social norms, social interaction ties, member trust, and intention to commit to OCs.

### 2. Literature review and hypotheses development

The Internet can be a valuable tool for expanding a user's personal network (Ishii & Ogasahara, 2007). OCs occur in a virtual space, enabling communication and supporting interpersonal interaction that extends over time (Chu & Chan, 2009; Martínez-Torres, Toral, Barrero, & Cortés, 2010), and forming networks of personal

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relationships (Jung & Kang, 2010; Wellman et al., 1996). The popularity of user-to-user interaction on the Internet is increasing, and members demonstrate a highly positive tendency to share opinions and comments with other members in OCs (Kimiloglu, 2004). Thus, though OCs facilitate conversations among members and foster member-to-member interaction within the community (Szmigin, Canning, & Reppel, 2005), the factors essential to members participating in OCs require greater understanding (Lin, 2006).

Social motivation refers to how other people influence an individual's decisions (Grenny, Maxfield, & Shimberg, 2008). Explanations based on social influence and the effect of network externalities should be expected because the more people use a product/service, the more useful it will be for an individual (Dickinger et al., 2008). Thus, network externality occurs when a member's use of a product or service increases with the number of other users (Chun & Hahn, 2007). According to management literature, the concept of network externalities is increasingly influential in explaining the numerous market outcomes of modern information technology (Joe, Lin, & Chiu, 2010), and is used to enhance understanding of network goods valuation (Dickinger et al., 2008) and e-business adoption (Lai, Wang, Hsieh, & Chen, 2007), such as online instant messenger services and network gaming (Chun & Hahn, 2007).

Social norms, however, refer to the degree to which people perceive that other people they consider important expect that he/she should perform a specific behavior (Gerow, Galluch, & Thatcher, 2010). Thus, social norms are the common beliefs and acceptable behavioral standards of the social group. Social norms have been found to influence individual perception and behavior. For example, Dickinger et al. (2008) found that social norms are a significant driver of usefulness and the perceived enjoyment of highly interactive services (for example, Push-to-Talk). Results of a previous study also show the significant influence of social norms on community loyalty behavior (Lin, 2010).

### 2.1. The role of network externality on social interaction ties

Network externalities occur when participation in a network benefits others in the network, and the value of the network grows as the number of members in the network increases (Song & Walden, 2007). That is, people use a particular system more when more people also use it, and when more people in their social group use it (Kraut, Rice, Cool, & Fish, 1998). Thus, network externalities occur due to social considerations (Janssen & Mendys-Kamphorst, 2007). A previous study suggested that positive network externalities improve the performance of an increasing network (Asvanund, Clay, Krishnan, & Smith, 2004), and are vital for intended future or continued participation in an OC service (Chun & Hahn, 2007; Chung & Hossain, 2010; Lin & Lu, 2011).

Based on marketing literature, social interaction is interpersonal action or a relationship between an individual and others (Varey, 2008). In this study, we define the term *social interaction ties* as the level of frequency and time investment of OC member interactions. Chun and Hahn (2007) suggested that the total network size and the number of active members in the "buddy list" are significant network externality factors. Members tend to seek more accessible and helpful relationships with their friends, family, and/or co-workers (Chu & Chan, 2009). Thus, when people perceive that not only numerous people but also their friends and acquaintances are joining and interacting in an OC, their willingness to interact and communicate within the OC increases. Based on this finding, this study reasonably expects the following.

**Hypothesis 1.** Network externalities positively influence social interaction ties in an OC.

### 2.2. The role of social norms in social interaction ties and relationship commitments

Within theory of planned behavior (TPB), social norms (also referred to as "subjective norms") are defined as individual perception of social pressure, or indication from significant reference individuals whether to perform a particular behavior (Rosenthal, Seeman, & Gibson, 2005). In OC context, social norms refer to individual user perception regarding norms and the opinions of external referents that are believed to understand and have previously used the OC (Song & Kim, 2006). Research found that social norms directly affect enduring involvement (Iwasaki & Havitz, 2004). Management literature has documented that buyer perceptions of social norms can result from ongoing interaction with sellers or other buyers (Lee, Murphy, & Neale, 2009). Thus, under a social norm, an individual may perceive social pressure to frequently interact and communicate with some members in an OC to conform to the expectations of external referents. Hence, the following hypothesis can be inferred.

**Hypothesis 2.** The social norms of individual users positively influence social interaction ties in an OC.

Regarding OCs, social norms involve perceived pressure from relatives, friends, or colleagues that either approve or disapprove of the user's intentions. Social norms reflect the effect of significant social pressures on individual behavior. Based on social influence theory, when the majority of the people significant to a person recommend they join a community, they may comply with the suggestion (Zhou, 2011). Thus, social norms are an external force comprising the contextual factors in which a behavior occurs (Gerow et al., 2010). Zhou (2011) suggested that social norms influence online community users' participation intention. Previous marketing studies also suggested that social norms relate positively to customer loyalty (Lee et al., 2009) and commitment (Moliner, Sánchez, Rodríguez, & Callarisa, 2007). Therefore, this study proposes the following hypothesis.

**Hypothesis 3.** The social norms of individual users positively influence their relationship commitment to an OC.

### 2.3. The relationship among social interaction ties, member trust, and relationship commitments

Social interaction ties are associated with the level of closeness and communication frequency among the members of an OC. Through close social interaction, a member can enhance the interpersonal relationship between two parties. Service researchers have suggested that customer-to-customer interaction may affect customer evaluation of the service experience (Wu, 2008). A previous study indicated that an OC supported by a Web site improves the relationships among members, consequently fostering trust (Sicilia & Palazón, 2008). Social interaction ties may also stimulate trust in other members (Law, 2008). When two parties frequently interact, their relationship becomes more definite, and the likelihood they perceive each other as trustworthy increases. Thus, the following can be inferred.

**Hypothesis 4.** Social interaction ties positively influence trust among members of OCs.

Researchers also documented that encouraging member participation is a facilitator for commitment to an OC (Gupta & Kim, 2007). Management literature has suggested that social interaction induces social benefits, which are subsequently positively related to a buyer's commitment to a relationship (Doney, Barry, & Abratt, 2007). Casaló, Flavián, and Guinalú (2008) further reported that

trust has a positive and noteworthy effect on member commitment to an OC. Based on these examples from literature and reasoning, the following hypotheses are proposed.

**Hypothesis 5.** Social interaction ties positively influence relationship commitment to an OC.

**Hypothesis 6.** Trust in other members positively influences relationship commitment to an OC.

### 3. Method

#### 3.1. Samples and data collection

Data were collected from classes at four universities in Taiwan. Students who were existing members of an OC were requested to participate in this survey during class time. The importance of their cooperation and the voluntary nature of the research were also stressed. If the respondent accepted the invitation, they were given a two-page survey questionnaire. Although no incentives were offered, of the 658 students propositioned, 408 students voluntarily participated in this study (a 62% response rate). The prompt instructed students to consider their “currently most visited online community.” Then, each participant was queried regarding their perceptions of the OC, using scales to represent their perceptions. After excluding 12 incomplete responses, the final sample comprised 396 responses. This study used Box’s M statistics to test the homogeneity of covariance matrices. The Box’s M test results indicate that respondents’ questionnaire responses were the same from the four universities ( $p = 0.096 > 0.05$ ), and the data were aggregated. Regarding demographics, 214 survey participants were male (54%) and 182 were female (46%). Concerning participants’ most visited online community, 73% reported Facebook, 14% reported Plurk, 7% reported Bahamut ([www.gamer.com.tw](http://www.gamer.com.tw)), and 6% visited other communities.

#### 3.2. Measures

The questionnaire comprised five major constructs: network externalities, social norms, social interaction ties, trust in other members, and relationship commitments. All constructs were measured using multi-item scales that were validated in previous research, and items were modified to represent the research context described below. Network externality was measured using the three-item scale developed by Strader, Ramaswami, and Houle (2007). Social norms were measured using three- and four-item scales that were modified according to the measuring scale developed by Wu and Jang (2008). The four-item scale of social interaction ties used in this study was adopted from the measure developed by Chiu, Hsu, and Wang (2006). Trust in other OC members was measured using the four-item scale developed by Jarvenpaa and Leidner (1999), and relationship commitment was measured using the four-item scale developed by Garbarino and Johnson (1999). All items were measured using a seven-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (7).

### 4. Data analysis and results

Data analysis comprised two primary phases. First, measurement items underwent confirmatory factor analysis (CFA) using LISREL 8.7 to determine whether they possessed appropriate properties to represent respective constructs. Reliability of the scale items was examined using composite reliability (CR) and average

variance extracted (AVE), as suggested in literature (de Matos & Rossi, 2007). Next, to test the hypotheses, this study performed structural equation modeling (SEM) analysis to examine the relationships among network externalities, social norms, social interaction ties, trust in other members, and relationship commitments. This study relied on the following fit indices: the chi-squared test, the comparative fit index (CFI), the incremental fit index (IFI), the goodness-of-fit index (GFI), and RMSEA to effectively evaluate the fit of the model.

#### 4.1. Measurement accuracy analysis

Table 1 shows the descriptive statistics of the research construct measures, including individual mean values, standard deviations, and correlations between measures.

Composite reliability (CR) and AVE values were the two indices used to conduct a reliability assessment, and the thresholds of the two indices were set at 0.7 and 0.5, respectively (Komiak & Benbasat, 2006). In this study, the CR scores of every construct (ranging from 0.76 to 0.92) were significantly higher than 0.70, which is the suggested benchmark for acceptable reliability. The AVE scores of every construct, ranging from 0.54 to 0.79, satisfied the requirement. All the values were above the required level (Table 2), indicating that the measurement items possess high reliability. The AVE can also be used to evaluate the discriminant validity. To satisfy the requirements regarding discriminant validity, the square root of AVE of each construct should be greater than all the constructs. Table 2 shows that the average variance extracted for each latent factor exceeds the respective squared correlation between factors, indicating the presence of discriminant validity.

#### 4.2. Model fit assessment

The framework depicted in Fig. 1 involves the hypotheses tested using structural equation modeling. The ratio of chi-square = 346.54 over  $df = 128$  is 2.71, indicating a good model fit. The final model fit indices showed an adequate model fit with CFI (0.98), IFI (0.98), GFI (0.91), and RMSEA (0.065). Fig. 1 also shows an examination of the proposed hypotheses. The path between network externalities and social interaction ties provided a standard coefficient of 0.35 ( $p < 0.001$ ); the results support Hypothesis 1. The standardized coefficient values for the path between social norms and social interaction ties and social norms and relationship commitments were 0.29 ( $p < 0.001$ ) and 0.24 ( $p < 0.001$ ), respectively. These results support Hypotheses 2 and 3. The standardized coefficient value for the path between social interaction ties and trust was 0.63 ( $p < 0.001$ ). The path between social interaction ties and relationship commitment yielded a standardized coefficient of 0.19 ( $p < 0.05$ ). These results support Hypotheses 4 and 5. Finally, the path between trust and relationship commitments provided a standardized coefficient value of 0.43 ( $p < 0.001$ ), confirming Hypothesis 6. Overall,  $H_1$  to  $H_4$  and  $H_6$  were supported at a significance level of  $p < 0.001$ . Only Hypothesis  $H_5$  was supported at a significance level of  $p < 0.05$ .

Furthermore, as shown in Table 3, although network externalities (0.22) and social norms (0.19) have a similar effect on interpersonal trust in an OC, social norms have a greater effect on perceived commitment to a community (0.38) compared to that of network externalities (0.16). The direct effect of social norms on relationship commitments (0.24) is stronger than the indirect mediating effect of social interaction ties (0.14). Thus, the data suggest that the higher the social norm level is, the greater the frequency of participation in an OC, which subsequently positively impacts commitment to the OC.

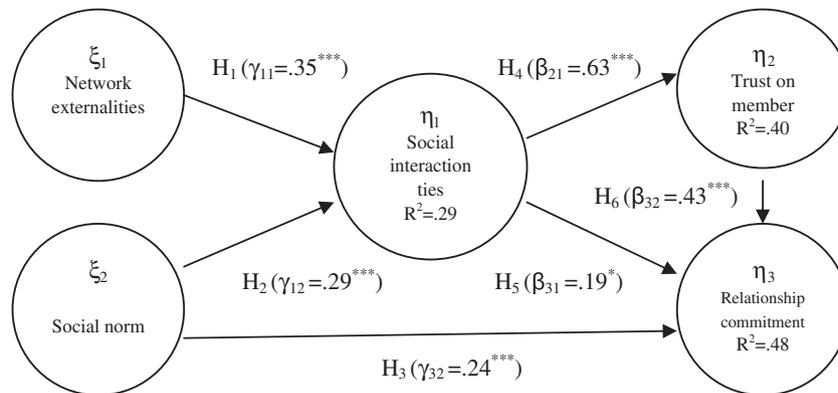
**Table 1**  
Means, standard deviations and correlations of construct measures.

Research constructs	Mean	S.D.	NE	SN	SI	TM	RC
Network externalities (NE)	5.42	1.06	1.00				
Social norm (SN)	4.87	1.16	0.41	1.00			
Social interaction ties (SI)	4.89	1.15	0.46	0.42	1.00		
Trust on member (TM)	4.47	1.03	0.35	0.44	0.62	1.00	
Relationship commitment (RC)	4.53	1.00	0.24	0.49	0.56	0.65	1.00

Note: Scores: 1–strongly disagree; 4–neutral; 7–strongly agree.

**Table 2**  
Indicators and confirmatory factor analysis.

Research constructs	Measurement items	C.R. values	AVE values
Network externalities (NE)	Many people join the online community	0.76	0.54
	Many of my friends join the online community		
	Many of my family members join the online community		
Social norms (SN)	Most people who are important to me think I should join the online community	0.92	0.79
	The people who I listen to could influence me to join the online community		
	My close friend and family members think it is a good idea for me to join the online community		
Social interaction ties (SI)	I maintain close social relationships with some members in the online community	0.88	0.65
	I spend a lot of time interacting with some members in the online community		
	I know some members in the online community on a personal level		
	I have frequent communication with some members in the online community		
Trust on members (TM)	Overall, the people in the virtual community were very trustworthy	0.87	0.62
	We were usually considerate of one another's feelings in the virtual community		
	The people in the virtual community were friendly		
	I could rely on those with whom I worked in my group		
Relationship commitment (RC)	I am proud of belonging to this online community	0.89	0.68
	I feel a sense of belonging to this online community		
	I care about the long-term success of this online community		
	I am a loyal patron of this online community		



\*\*\* significance level <0.001; \* significance level <0.05

**Fig. 1.** Research results.

**Table 3**  
Direct, indirect, and total effects.

Predictor variables/effect	Trust on members (TM)			Relationship commitment (RC)		
	IE	DE	TE	IE	DE	TE
Network externalities (NE)	0.22 (4.92)		0.22 (4.92)	0.16 (4.47)		0.16 (4.47)
Social norms (SN)	0.19 (4.37)		0.19 (4.37)	0.14 (4.06)	0.24 (4.31)	0.38 (6.33)
Social interaction ties (SI)		0.63 (9.88)	0.63 (9.88)	0.27 (5.30)	0.19 (2.55)	0.46 (7.29)

Note: IE: indirect effect; DE: direct effect; TE: total effect (t-value).

**5. Discussion**

This article addresses whether social motivations affect current member participation in OCs, and how social motivations affect their commitment to OCs. This study investigates the effect of network externalities and social norms. Structural equation modeling (SEM) analysis indicates that both network externalities and social norms positively influence a member's social interaction ties, which subsequently influence trust in other members and relationship commitments. The findings suggest that network externalities and social norms facilitate member participation in community activities, increasing interpersonal trust and commitment to the community.

### 5.1. Theoretical and practical implications

Because relevant empirical studies have not previously explored the impact of network externalities and social norms on social interaction ties, interpersonal trust, and community commitment, a potential contribution of this study is testing these connections. The model proposed in this study provides an original examination of the relationships among these factors. This study contributes to literature by integrating research on social motivations affecting OC member participation and the forming of trust and commitment. These findings are helpful in understanding the role of network externalities and subjective norms, and provide theoretical insights into how these social motivations affect members' interaction ties, interpersonal trust, and commitment to a community.

The research findings provide a critical managerial implication for OC administrators regarding motivation design. This study shows that network externalities and subjective norms are antecedents to social interaction ties. Thus, this finding should be considered by OC managers. Although technological factors are crucial (Chen, 2007), social factors that affect how members perceive the network externalities and social norms of a community are vital to their continued participation, and consequently, to the success of the community. Therefore, this study suggests that community administrators not only rely on technological perspectives, such as ease of use, but also on social factors to enhance member interaction in the community. Member commitment to a community directly relies on social norms, social interaction ties, and interpersonal trust in an OC; therefore, community administrators should persuade existing members to frequently participate in community activities. Administrators should also encourage members to invite their friends to join the community. For example, develop recommended award programs that motivate members to convince relatives, friends, or colleagues to join the community. When more personally familiar people join a community, network externalities develop, resulting in interaction ties. Furthermore, a member's recommended behavior may create a norm, causing a potential member to not only join a community, but also to participate frequently because they believe that their friends or significant reference groups are concerned with their participation. Thus, recommendations from an existing community member affect a potential member's perception and future behavior toward the community, such as whether to join and the level of community interaction. These behaviors may further enhance the perception of potential or existing members toward the community. Therefore, OC administrators should use these findings to develop a cycle of enhanced perceptions within and outside an OC.

### 5.2. Conclusion, limitations, and further research

With the increasing importance of social interaction and the growing number of online communities, developing a clearer understanding of community members is imperative for administrators. Understanding how a member's perception of network externalities and social norms affects their commitment to a community is particularly useful for administrators in developing programs that effectively enhance member commitment. Despite significant contributions, this study is not without limitations. First, OCs should be regarded as a social phenomenon that establish social networks of people with common interests (Torralba, Martínez-Torres, Barrero, & Cortés, 2009), and different types of OCs may trigger different network purposes and targets (Akoumianakis, 2010). A previous study suggested that OCs can be categorized according to the mutual goals and shared interests of community members (Kim et al., 2008). An individual may have a different connection to an OC that offers support for an illness compared to the connection someone who frequents an OC to play a com-

puter game has. Though this information is not available in this study, how types of OCs influence the effects of social motivation should be explored. A second limitation of this study relates to individual characteristics that may moderate the effects of social factors on commitment intentions. For example, Cheung and Lee (2009) indicated that an OC user's individual factors (purposive value and self-discovery) significantly influence their satisfaction, which subsequently impacts their behavioral intentions considerably. Additionally, research also found a strong connection between the individual personality of the user and their behavior on an OC such as Facebook (Amichai-Hamburger & Vinitzky, 2010). Through investigating the moderating role of individual characteristics, future research is expected to provide more insightful guidelines for managers and practitioners. Third, another possible limitation of this study results from the homogeneous undergraduate sample, which limits generalizability. Thus, to provide evidence of generalizability, future research is needed to replicate our findings in other populations. Finally, future research should consider the mediators between social factors and outcomes. For instance, Strader et al. (2007) suggested that network externality is positively associated with users' perceived usefulness, which subsequently affects their adoption intention. Therefore, further research should continually refine the mediator within the model while valuing the importance of understanding the factors contributing to the management of OCs. Such further study would address a number of research gaps related to the links between social motivations and successful communities.

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