

Journal of Information Technology Management

ISSN #1042-1319

A Publication of the Association of Management

A STUDY OF FACTORS RESULTING TO ONLINE COMMUNITY FORMATION

MAYANK SHARMA

INDIAN INSTITUTE OF MANAGEMENT, LUCKNOW

fpm10012@iiml.ac.in

PRADEEP KUMAR

INDIAN INSTITUTE OF MANAGEMENT, LUCKNOW

pradeepkumar@iiml.ac.in

BHARAT BHASKER

INDIAN INSTITUTE OF MANAGEMENT, LUCKNOW

bhasker@iiml.ac.in

ABSTRACT

Online communities exist in various forms in Internet like groups, forums, chat discussion boards etc. The advent of social networking sites has brought an environment in which such communities can thrive. In this study, we study the fundamental motivation of a user to join an online community with the help of Technology Acceptance Model, flow theory, trust and social capital theory. The user beliefs and the factors affecting these beliefs are considered to arrive at a theoretical model which helps in determining the intention to join a particular community. Further, we also provide the benefits arising from joining online community resulting to online social capital. Our study reveals that perceived usefulness of an online community is the most important factor affecting the intention to join an online community and formation of online social capital for an internet user.

Keywords: Online Communities, Social Networking Sites, TAM, Online Social Capital

INTRODUCTION

Social networking on the internet is becoming important not only for individuals but also for organizations. It has penetrated in every phase of people's life from making new friends, to maintaining existing relationships, job search or brand building exercise for organizations. The online social networks (OSNs) provide a shared communication environment with inbuilt features which facilitates the formation of online communities (OC). The study of online communities in social networks

thus becomes an integral part of social network researchers.

In today's digital era, information and communication technologies (ICTs) act as a major player or catalyst into the processes of community formation. The community formed online varied vastly from one another either based on age, culture, economic benefits, interest, language, or other dimensions that would hinder if not prohibit communication in the physical world. There could be various reasons for a user to join and remain in a particular online community. These community formations give rise to fundamental questions

like, why do people join a community? What factors basically motivate an online user to share his views and ideas on social networking sites? Do the features like trust and security stops someone really joining the community? How do these variables change over time as the members of the community come to know one another?

These issues has been dealt with in various studies in different forms like dealing with identity of user in online social networks [32], defining the communities [37], the relative strength of relationship ties among community members, the trust between the community members [2] etc. Social networking sites such as MySpace and Facebook thrive on energetic social interaction, but the factors that assure this are not well understood [19]. In this study we try to address this fundamental aspect of understanding the reasons behind joining an online community.

The objective of our study is twofold in nature. First we use the theories such as Technology Acceptance Model (TAM) and flow theory to identify the factors which can be important determinants for joining an online community. Since joining an online community in social networking sites fits into the information system adoption study so we use TAM, the most widely used model in adoption studies, as the base model. Since the context here is voluntarily usage of such online communities so the involvement of user becomes extremely important for consideration. To factor this aspect in our study we also use flow theory in conjunction with TAM. Second objective of our study is to focus on knowing the benefits associated for an individual with this community formation process. We use social capital theory in the form it is applied for online information systems.

In order to accomplish our study we formulate our research question as given below:

RQ1: Why do people join online communities?

What are the underlying reasons for an individual to join an online community?

RQ2: What are the benefits associated with people joining online communities in context of social networking sites?

The paper is organized as follows. First we present the literature review comprising of various theories used in our study and the associated constructs. We then build hypotheses based on the theoretical background. Subsequently we present the methodology of our study and the results from our study. Next we discuss our findings and later conclude the paper with future research directions.

THEORETICAL BACKGROUND

The objective of this research is to understand the underlying factors which can influence the user to join a particular community thereby facilitating the community formation process in an online social network. To investigate these factors we start with technology adoption studies and thus use the most widely used Technology Acceptance Model (TAM) [15, 30].

The approach of using theories such as TAM to answer our research question listed earlier provides us with the user perspective for online community formation process. As suggested by Legris et al. [30] the TAM seldom explains the whole picture for technology acceptance problems. So along with TAM we also use factor from flow theory [12], Social Capital [39] and trust [23] to investigate research question more holistically. We build our research model based on the factors from these proven theoretical backgrounds.

Intention to Use an Online Community

Technology adoption studies usually focuses on investigating the intention to use a particular information system and thereby facilitate and translate that intention into actual use of information system. This factor becomes our consequence in research model. It is very important for organizations to know it because it would provide them a way to harness these online communities to reach their organizational goals. Also for marketers it is essential to know the factors impacting the use of an online community. We borrow this factor from TAM [30] for which it is the consequence.

Bonding and Bridging Social Capital

To investigate the benefits associated with the joining of an online community we use the Social Capital theory. Social capital broadly refers to the resources accumulated through the relationships among people [10] which provide us two benefits for online social networks. These two benefits are bonding social capital and bridging social capital associated with the type of relationships from which they are derived from online social networks. As we refer to relationships as network ties in OSNs we have two kinds of network ties viz. strong ties and weak ties. The strong ties which exist between the close relationships among users of OSNs such as close friends and family can provide emotional support or access to scarce resources [36]. The other benefit is in form of bridging social capital which is derived from weak ties. The weak ties which exist between acquaintances may provide useful information or new perspective for one another, but typically not emotional support [36].

Perceived Ease of Use and Perceived Usefulness

According to TAM the attitude towards a technology affects its use the two belief variables used in the TAM which explains the impact on attitude and in turn determines the intention to use are Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). As TAM has been applied to online websites [28] or computers at workplace [17] the following hypotheses follows:

Hypothesis 1a: Perceived ease of use will positively affect intention to use an online community

Hypothesis 1b: Perceived usefulness will positively affect intention to use an online community

Davis et al. [16] and Venkatesh [44] suggest that perceived ease of use affect perceived usefulness and thereby affects the intention to use an information system. Thus follows the hypothesis:

Hypothesis 1c: Perceived ease of use will positively affect perceived usefulness of an online community

As people find merit in perceived ease of use and perceived usefulness of an online community the more likely they are to use that community and thereby making new ties with other users. Nahapiet and Ghoshal [34] believe that network ties provide access to resources in form of social capital. The weaker ties contribute to the bridging social capital and stronger ties to the bonding social capital. Thus we hypothesize:

Hypothesis 1d: Perceived ease of use will positively affect bonding social capital

Hypothesis 1e: Perceived ease of use will positively affect bridging social capital

Hypothesis 1f: Perceived usefulness will positively affect bonding social capital

Hypothesis 1g: Perceived usefulness will positively affect bridging social capital

Perceived Enjoyment

Past studies have verified that the use of computer technology was influenced by perceived enjoyment [17, 18]. Concept of perceived enjoyment is borrowed from flow theory [12, 13, 14] where flow is defined as “the holistic sensation that people feel when they act with total involvement”. A common measure of flow is the level of intrinsic enjoyment of an activity. An online community interaction is a volitional activity where factor such as enjoyment is likely to play an extremely important role. Thus we hypothesize:

Hypothesis 2a: Perceived enjoyment will positively affect intention to use an online community

Since intrinsic motivation drives a user for joining an online community voluntarily thus the more user of SNS is enjoys activities within online community the more likely user is to form new ties and thus contribute to social capital. Again the kind of social capital generated follows whether the ties to which perceived enjoyment contributes is strong tie or weak tie. Hence follows:

Hypothesis 2b: Perceived enjoyment will positively affect bridging social capital

Hypothesis 2c: Perceived enjoyment will positively affect bonding social capital

Venkatesh [43] argues that perceived ease of use is affected by perceived enjoyment. Other studies [41, 43] too find support for this relationship. Venkatesh [43] found that by manipulating the perceived enjoyment associated with information system not only the perceived ease of use of information system increased but also it became more salient to the intended use of system. Thus follows:

Hypothesis 2d: Perceived enjoyment will positively affect perceived ease of use of an online community.

System Trust and Interpersonal Trust

Trust is a multidimensional construct [24] whose causes and effects have been studied in various scientific disciplines such as sociology, psychology, and marketing. Trust in online has been studied by Friedman et al. [23] as a means for enriching social capital, Ba [2] for trust involved with e-commerce transactions etc.

We are interested in trust existing in an online community in social networking sites. In this context the trust is derived from the relationships existing among users. This becomes the part of our research model in form of interpersonal trust. Interpersonal trust is defined as “an expectancy held by an individual or a group that the word, promise, verbal, or written statement of another individual or group can be relied on” [38]. Another dimension for trust in online community to be considered is the trust of an individual on the overall system. This type of trust is attributed to system trust which is defined as perceived integrity, benevolence, and ability of the system operator [24] which in our case is social networking site.

Trust has been used along with TAM to explain the intended use of information system. It is established by Gefen et al. [24] that trust acts an antecedent in e-commerce activities. Benlian and Hess [6] and Chiu et al. [9] also establish trust as an important antecedent for the participation in online communities. The greater we have trust in online community of SNS and its users the more

likely we are to join that community and use it. Thus we hypothesize:

Hypothesis 3a: System trust will positively affect intention to use an online community

Hypothesis 3b: Interpersonal trust will positively affect intention to use an online community

Since both system trust and interpersonal trust factors into the intended use of an online community thus they are more likely to form new ties with other users in the online community. Since system trust depends on the individual perceptions of the institutional environment of a system and the structural assurances it provides thus it is likely to affect both formation of weak ties and strong ties hence we hypothesize:

Hypothesis 3c: System trust will positively affect bonding social capital

Hypothesis 3d: System trust will positively affect bridging social capital

On the other hand interpersonal trust is result of interaction among user and is an experience based trust. Interpersonal trust is contributed by more interaction among users which is more likely to be for the strong ties which are formed between close friends and family. Thus interpersonal trust would affect the bonding social capital. Thus we hypothesize:

Hypothesis 3e: Interpersonal trust will positively affect bonding social capital

Social Networking Site Usage, Self Efficacy and Social Influence

We now elaborate on the external variables for our research model which are likely to be the antecedent for the user beliefs mentioned earlier.

Internet use was studied by Kraut et al. [29] on social involvement and well being. With more and more involvement of users on internet it was studied for its impact on offline interactions and social psychology in general [5, 33]. Earlier usage in general has been studied as computer usage by Compeau et al. [11] and Burkhardt and Brass [8] for the effects on and by user beliefs. Eastin and LaRose [20] studied the effect of internet use on social, informational and entertainment outcomes. More recently Facebook usage has been studied as an antecedent in building of online social capital [21]. We study the usage in our context as social networking site usage (SNS usage) and its affect on the user beliefs to use an online community. Bargh and McKenna [5] suggest that internet use in general contributes to the offline community involvement as they are more aware and knowledgeable about each other through online interactions. In our context of online community interaction thus we believe that more SNS usage is likely

to contribute to more familiarity with the features of SNS and thus impacting on user beliefs to use an online community. Thus we hypothesize:

Hypothesis 4a: Social networking site usage will positively affect perceived usefulness of an online community

Hypothesis 4b: Social networking site usage will positively affect perceived ease of use of an online community

Hypothesis 4c: Social networking site usage will positively affect perceived enjoyment of an online community

Self-efficacy in context of information system adoption studies has been studied extensively [4, 11, 20, 26] as an antecedent [20,44] to the user beliefs involved in the adoption theories. Self-efficacy is a behavioral concept which was first proposed by Bandura [4] and is defined as the belief "in one's capabilities to organize and execute the courses of action required to produce given attainments". Earlier it has been studied in general as computer self-efficacy [11,26] and internet self-efficacy [20].

We in the context of our study of online communities in social networking sites use it as social networking site self-efficacy (SNS self-efficacy). Again internet self-efficacy has been studied as an antecedent for the social, informational and entertainment outcomes [20] and Venkatesh [44] found it as important determinant of perceived ease of use of information system. Liu et al. [31] studied that external variable such as previous online learning experience is antecedent for the user beliefs such as perceived usefulness and perceived ease of use of TAM. Since SNS self-efficacy relates to the ability and skills that an individual possesses to use a social networking site which can thus contribute positively to usefulness ease of use and enjoyment for an online community. Thus we hypothesize:

Hypothesis 5a: Social networking site self-efficacy will positively affect perceived usefulness of an online community

Hypothesis 5b: Social networking site self-efficacy will positively affect perceived ease of use of an online community

Hypothesis 5c: Social networking site self-efficacy will positively affect perceived enjoyment of an online community

Other users act and others thoughts may sometime influence the choices involved in our decision making.

Social influence particularly in social networking studies become extremely important Venkatesh et al. [46] define social influence as 'the degree to which an individual perceives that important others believe he or

she should use the new system'. Social influence sometimes termed as subjective norm has been used as direct determinant of behavioural intention to use an information system [46]. Theory of Reasoned Action (TRA) [22] and Theory of Planned Behaviour (TPB) [1] suggest that subjective norm affects the behavioural intention directly. Many other studies [45, 48] also support this influence of social influence on behavioural intention to use an information system.

Venkatesh et al. [46] argues that while this relation exists when use of information system is mandated and thus the relation existence is driven by the compliance factor of social influence. In case of voluntary context, such as use of online communities existing in social networking sites, the social influence exists by virtue of influencing the perceptions about the technology [46]. Thus we hypothesize as

Hypothesis 6a: Social influence will positively affect perceived usefulness of an online community

Hypothesis 6b: Social influence will positively affect perceived ease of use of an online community

Hypothesis 6c: Social influence will positively affect perceived enjoyment of an online community

Since social influence in voluntary context can influence the perceptions about an online community hence it can also contribute in building of trust of users in an online community. Thus we hypothesize:

Hypothesis 6d: Social influence will positively affect system trust of an online community.

The complete theoretical framework is shown in Figure. 1 with the arrows representing the hypothesized relationships between the various constructs.

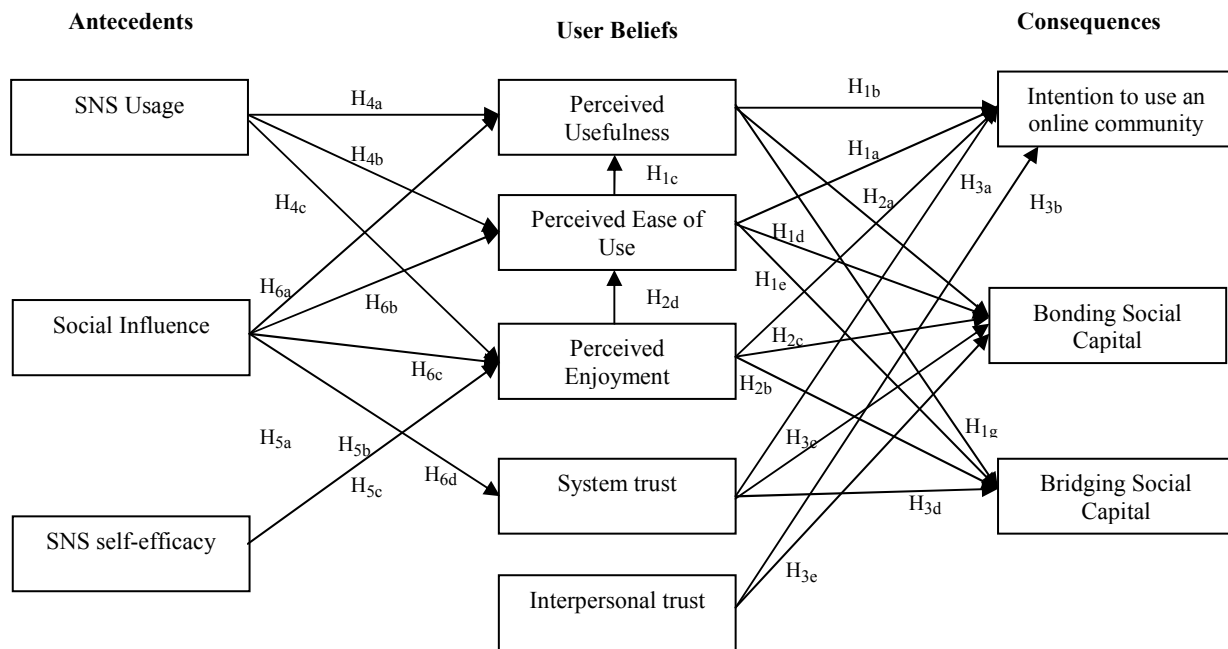


Figure 1: Theoretical research model

METHODOLOGY

For capturing the user’s perception we build a survey instrument based on measurement scales borrowed from the literature. The entire list of items for various constructs as used in our survey is provided in Appendix A. While the measures are based on previously validated

instruments in the literature, the current study re-validates these measures, as recommended by Straub [40].

Both online and offline modes were used for collecting the responses from the survey respondents. Total N= 261 responses were collected with both online and offline modes after rejecting for the incomplete and invalid responses. For online mode a survey was created on online survey hosting site and the link was sent with

emails to the respondent explaining the nature of study. Each respondent was asked to fill the survey if they had any prior experience of internet and also any of the online community in any social networking site. For offline mode the survey data was collected from user by distributing the printed survey questionnaire to the online community users. The filling of survey was voluntary and optional to submit so that there will be no confounding effects from coercing subjects into participation. They were also asked to mention the online community to which they mostly associate with and were part of it. Most of the users responded about the social networking sites as Facebook owing to its largest reach among social networking users. The demographic data for the sample data collected is illustrated in Table 1.

Table 1: Sample Demographics

Variable	Frequency (%)
Gender	
Male	189 (72.41%)
Female	72 (27.59%)
Age	
18-25	106 (41%)
26-35	132 (51%)
36-45	15 (6%)
>46	8 (3%)

Table 2 summarizes the reliabilities and validity of all the scales used in our research model. The average variance extracted (AVE) for every construct was above 0.5, which means the scales had a good convergent validity [3]. We used composite reliabilities (CRs) to evaluate the internal consistency of the measurement model.

As shown in Table 2, the CRs were all above 0.7, indicating the scales had good reliabilities [35]. All Chronbach's alpha values were above the 0.70 threshold, indicating that the scales had high reliabilities [35]. As Intention to use an online community was measured using single item scale hence the Chronbach's alpha for it cannot be calculated. Also since Social Influence is two item scale so we calculate the Spearman-Brown statistic for it which comes out as 0.742 showing a good reliability. We show the correlation matrix and the square roots of the AVEs in Table 3. The square roots of the AVEs are the diagonal elements and they were all larger than their corresponding correlation coefficients with other factors. This suggests that the scales had good discriminant validity.

Table 2: Summary Statistics and Chronbach's Alpha Values for all Scales

Scale	Chronbach's alpha	AVE	CR
Social networking site usage	0.831	0.910	0.805
Social networking site self-efficacy	0.878	0.935	0.882
Perceived Ease of Use	0.874	0.902	0.906
Perceived Usefulness	0.775	0.796	0.812
Perceived Enjoyment	0.828	0.905	0.908
System Trust	0.876	0.682	0.895
Interpersonal Trust	0.836	0.842	0.821
Bonding Social Capital	0.832	0.862	0.780
Bridging Social Capital	0.900	0.899	0.869

We then examined the structural model using Lisrel 8.52 which performs a covariance based structured equation modelling (SEM). For the multilayered model such as in our study the covariance based SEM is suitable analysis method. Path analysis of the structural model included our hypotheses as the paths between the latent constructs as well as the paths between the items and its latent constructs. The fit indices were within the accepted threshold limits. The various fit indices are given in Table 4.

Table 3: Pearson Correlation Coefficients

Scales used	SNSU	SE	SI	PEOU	PU	PE	ST	IT	IU	BOSC	BRSC
SNSU	0.954										
SE	.396**	0.967									
SI	.229**	.264**	1								
PEOU	.201**	.503**	.318**	0.950							
PU	.386**	.483**	.457**	.515**	0.892						
PE	.426**	.418**	.327**	.336**	.503**	0.951					
ST	.339**	.311**	.467**	.277**	.362**	.417**	0.826				
IT	.219**	.184**	.225**	.108	.211**	.245**	.614**	0.918			
IU	.343**	.413**	.286**	.288**	.530**	.364**	.214**	.071	1		
BOSC	.321**	.439**	.398**	.305**	.402**	.358**	.525**	.340**	.276**	0.928	
BRSC	.446**	.544**	.392**	.341**	.582**	.524**	.344**	.158*	.379**	.451**	0.948

where : SNSU- Social Networking Site Usage; SE- Self Efficacy; PEOU- Perceived Ease of Use; PU-Perceived Usefulness; PE- Perceived Enjoyment; ST- System Trust; IT-Interpersonal Trust; IU-Intention to Use; BOSC-Bonding Social Capital; BRSC-Bridging Social Capital

Table 4: Fit Indices for the Structural Path Model

Fit Indices	Values	Accepted Threshold
X ² /df	2414.66/1240= 1.94	<3
RMSEA	0.060	<0.08
NFI	0.92	>0.90
NNFI	0.95	>0.90
CFI	0.96	>0.90
GFI	0.74	>0.90
AGFI	0.71	>0.80
IFI	0.96	>0.90
SRMR	0.082	<0.08

Even though the chi-square statistic is significant due to the large sample size, the value of the chi-square statistic (=2414.66) divided by the degrees of freedom (1240) is 1.94, which is well below the value of 5 that some researchers use as a guideline [27]. The RMSEA of 0.06 is well within recommended value of 0.08 which is acceptable [7].

The result of path analysis shows some of the hypotheses are not supported. The complete result of supported hypotheses is shown in Table 5.

Final model which has been empirically validated is shown in Figure 2. It illustrates the paths which were found to be significant for which the hypothesis were satisfied. Also different R² values are shown in the Figure 2 which illustrates the variance explained for the variables.

Table 5: Result of Hypothesis Testing

Hypothesis	Supported (Yes/No)
H1a: Perceived ease of use → Intention to use	No
H1b: Perceived usefulness → Intention to use	Yes
H1c: Perceived ease of use → Perceived usefulness	Yes
H1d: Perceived ease of use → Bonding social capital	No
H1e: Perceived ease of use → Bridging social capital	No
H1f: Perceived usefulness → Bonding social capital	Yes
H1g: Perceived usefulness → Bridging social capital	Yes
H2a: Perceived enjoyment → Intention to use	No
H2b: Perceived enjoyment → Bridging social capital	Yes
H2c : Perceived enjoyment → Bonding social capital	No
H2d: Perceived enjoyment → Perceived ease of use	No
H3a: System trust → Intention to use	No
H3b: Interpersonal trust → Intention to use	No
H3c: System trust→ Bonding social capital	Yes
H3d: System trust→ Bridging social capital	No
H3e: Interpersonal trust→ Bonding social capital	No
H4a: SNS usage → Perceived usefulness	Yes
H4b: SNS usage → Perceived ease of use	No
H4c: SNS usage → Perceived enjoyment	Yes
H5a: SNS self-efficacy→ Perceived usefulness	Yes
H5b: SNS self-efficacy → Perceived ease of use	Yes
H5c: SNS self-efficacy → Perceived enjoyment	Yes
H6a: Social Influence → Perceived usefulness	Yes
H6b: Social Influence → Perceived ease of use	Yes
H6c: Social Influence → Perceived enjoyment	Yes
H6d: Social Influence → System trust	Yes

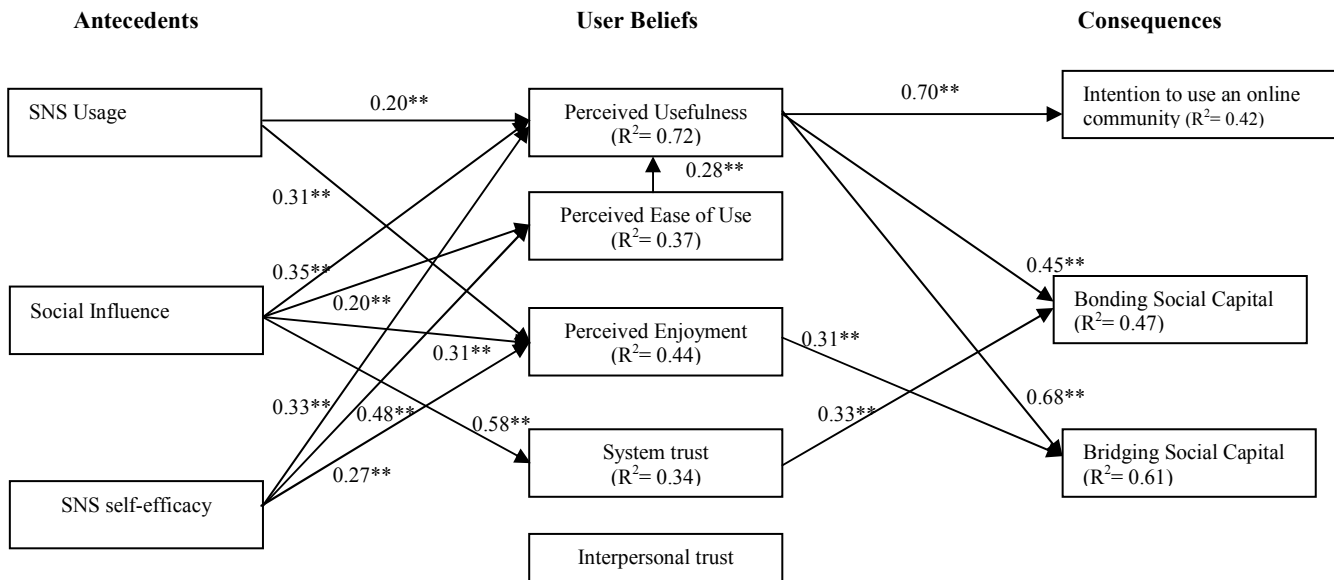


Figure 2: Empirically validated relationships

DISCUSSION

In our study we tried to first establish the relationships between the external variables such as usage, social influence, self-efficacy and user beliefs on the intention to use an online community in a social networking site context. User beliefs include the factors such as perceived usefulness, perceived ease-of-use, perceived enjoyment and trust variables. Trust is made from various factors namely investigate, system trust and interpersonal trust.

The benefits in form of bonding social capital and bridging social capital were also incorporated and the effect of user beliefs and external variables on them was also tested. The results show that intention to use an online community is directly driven by its perceived usefulness because the more a user finds the online community useful the more likely s/he is to join and use that community. The perceived enjoyment and perceived ease-of-use do not have direct impact on the use of online community but they influence this user's decision indirectly by increasing the usefulness aspect of online community.

Our study findings supported the findings of voluntarily context of online community usage [44]. In their paper they showed that the perceived enjoyment and ease-of use of online community increases its perceived usefulness. For example, the more easier a user finds online community features the more useful that community will become for him/her because user now would be able to derive more from the community experience using those features. Thus it may not be expected that an online community may be used for purpose of enjoyment but if a user enjoys the experience then it may contribute towards the usefulness of that online community.

Our findings establish the robustness of TAM being able to predict the intention to use an information system.

Furthermore the usage, social influence and self-efficacy of social networking sites are useful to influence the user beliefs thus the more time user spends on social networking site the more likely s/he is to gain the ability, skills and become comfortable with social networking site features and thus would be forming positive beliefs about using an online community.

The social influence in voluntarily context is driven by internalization and identification component [46] which thus affects the user perceptions about technology and thus it is seen to be influencing the TAM variables as well as system trust. However we did not find any influence of system trust and interpersonal trust on

intention to use an online community. This is in contrast with the expected effect and thus need to be further tested and investigated. It may be the case that respondents in this case were majorly college students and thus were able to know each other through earlier interactions and thus were able to trust the online community and its members whose effect thus does not come out to be important.

We may test this effect on respondents who are likely to join the online community which is not much influenced by their offline interactions. Still we found that in terms of benefits of joining an online community the bonding social capital is influenced both by user beliefs about online community as well as the system trust component on the online community. Thus members who are joining an online community and remaining with that community for longer time to be able to strengthen the system trust component would be able to benefit in terms of their bonding social capital. The strong ties would thus be contributing to the emotional support for user from community members.

The information exchange benefits from diverse set of users of online community in form of bridging social capital is seen to be derived directly/indirectly from the user beliefs i.e. TAM variables perceived usefulness, perceived ease-of-use and perceived enjoyment. A user finding the online community useful and enjoyable is likely to develop new relationships with online community members and thus would be exposed to diverse information exchanges contributing to the bridging social capital. However, again, we could not establish the relationship of trust on bridging social capital which thus needs to be investigated further with more diverse sample of users for our study.

So far we have discussed the relationships between user beliefs and their outcomes viz. intention to join an online community and bridging and bonding social capital as the benefits. Perceived usefulness of an online community is the most important factor to consider when considering these outcomes. Since a user has the option of joining many online communities existing in social networking sites so user is most likely to choose based on the belief. An online community which is perceived more useful to that user among the choices available should be recommended.

The perceived usefulness of that online community depends on factors such as social networking site usage, self-efficacy of that user in using online social networking site, social influence and perceived ease of use. Since the self-efficacy and usage data of social networking site is available to it so this information should be used while recommending online communities to user. Also social influence can be computed by devising some metric which translates the agreement and

disagreement of user with opinions of others especially of close friends and family.

For example, the similarity between interests, books read, movies watched between a user and its close friends can be one of the ways to quantify social influence. The perceived ease of use of an online community should also be factored to determine the perceived usefulness of an online community.

The perceived usefulness of that online community depends on factors such as social networking site usage, self-efficacy of that user in using online social networking site, social influence and perceived ease of use. Since the self-efficacy and usage data of social networking site is available to it so this information should be used while recommending online communities to user. Also social influence can be computed by devising some metric which translates the agreement and disagreement of user with opinions of others especially of close friends and family.

For example, the similarity between interests, books read, movies watched between a user and its close friends can be one of the ways to quantify social influence. The perceived ease of use of an online community should also be factored to determine the perceived usefulness of an online community.

CONCLUSION AND FUTURE SCOPE

In this study we have developed a theoretical model which incorporates the theories such as TAM and flow theory to explain the user behavior in the community formation process. We conclude that usefulness of online community is important driver for joining an online community. The factors that contribute towards making an online community useful should be incorporated. The factors, identified from our research study, such as self-efficacy and social influence can be used towards making an online community useful. The skills and abilities of user can be improved by providing certain notes, illustration and tutorials for using an online community effectively. Many users which are not aware of the features provided by social networking sites for online communities would get help with such initiatives and are more likely to join such online communities. Also if a user has his friends already in an online community then he/she is more likely to use such online community. This aspect should also be included while suggesting about new online communities to users may be of interest to him/her. Again we also found that online social capital for both strong and weak ties is built mainly due to the usefulness of such online community. More useful a user

finds an online community the more likely s/he is to strengthen his/her existing ties and create new ties within such communities. This will also contribute towards success of online communities as users would provide for the emotional support as well as enriching the community with diverse set of information exchanges. Trust in online communities also strengthens the relationship among users of such online community and thus contributes towards bonding social capital.

Overall we found that features of online community which make it more useful and enjoyable are pertinent for determining the use of that online community. Moreover these user perceptions about online community contribute directly or indirectly towards building of online social capital. The effect of online interactions in such online community on offline social capital may be an interesting research direction for further study. Another future direction can be to compare the results from our study with results from different type of online communities. This approach can either strengthen or throw more insight into the results from our study.

REFERENCES

- [1] Ajzen, I. "The theory of planned behavior," *Organizational behavior and human decision processes*, Volume 50, Number 2, 1991, pp 179-211.
- [2] Ba, S. "Establishing online trust through a community responsibility system," *Decision Support Systems*, Volume 31, Number 3, 2001, pp 323-336.
- [3] Bagozzi, R. P. and Yi, Y. "On the evaluation of structural equation models," *Journal of the academy of marketing science*, Volume 16 Number 1, 1988, pp 74-94.
- [4] Bandura, A. "Self-efficacy: toward a unifying theory of behavioral change," *Psychological review*, Volume 84, Number 2, 1977, p 191.
- [5] Bargh, J. A. and McKenna, K. Y. "The Internet and social life," *Annu. Rev. Psychol.*, Volume 55, 2004, pp 573-590.
- [6] Benlian, A. and Hess, T. "The Signaling Role of IT Features in Influencing Trust and Participation in Online Communities," *International Journal of Electronic Commerce*, Volume 15, Number 4, 2011, pp 7-56.
- [7] Browne, M. W. and Cudeck, R. *Alternative ways of assessing model fit*. Sage Focus Editions, 154, 1993, pp 136-136.
- [8] Burkhardt, M. E., and Brass, D. J. "Changing patterns or patterns of change: The effects of a change in technology on social network structure

- and power,” *Administrative Science Quarterly*, 1990, pp 104-127.
- [9] Chiu, C. M., Hsu, M. H., and Wang, E. T. “Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories,” *Decision support systems*, Volume 42, Number 3, 2006, pp 1872-1888.
- [10] Coleman, J. S. “Social capital in the creation of human capital,” *American Journal of Sociology*, 1988, pp S95–S120.
- [11] Compeau, D., Higgins, C. A., and Huff, S. “Social Cognitive Theory and individual reactions to computing technology: A longitudinal study,” *MIS quarterly*, Volume 23, Number 2, 1999, pp 145-158.
- [12] Csikszentmihalyi, M. “Play and intrinsic rewards,” *Journal of Humanistic Psychology*, 1995.
- [13] Csikszentmihalyi, M. *Beyond boredom and anxiety*. Jossey-Bass, 2000.
- [14] Csikszentmihalyi, I. S, ed. *Optimal experience: Psychological studies of flow consciousness*. Cambridge University Press, 1992.
- [15] Davis, F. D. “Perceived usefulness, perceived ease of use, and user acceptance of information technology,” *MIS Quarterly*, Volume 13, Number 3, 1989, pp 319–340.
- [16] Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. “User acceptance of computer technology: a comparison of two theoretical models,” *Management science*, Volume 35, Number 8, 1989, pp 982-1003.
- [17] Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. “Extrinsic and intrinsic motivation to use computers in the workplace,” *Journal of applied social psychology*, Volume 22, Number 14, 1992, pp 1111-1132.
- [18] Dickinger, A., Arami, M., and Meyer, D. “The role of perceived enjoyment and social norm in the adoption of technology with network externalities,” *European Journal of Information Systems*, Volume 17, Number 1, 2008, pp 4-11.
- [19] Dwyer, C., Hiltz, S. R., and Widmeyer, G. “Understanding development and usage of social networking sites: The social software performance model,” In *Hawaii International Conference on System Sciences, Proceedings of the 41st Annual*. IEEE, 2008, pp. 292-292.
- [20] Eastin, M. S., and LaRose, R. “Internet self-efficacy and the psychology of the digital divide,” *Journal of Computer-Mediated Communication*, Volume 6, Number 1, 2000.
- [21] Ellison, N. B., Steinfield, C., and Lampe, C. “The benefits of Facebook “friends:” Social capital and college students’ use of online social network sites,” *Journal of Computer-Mediated Communication*, Volume 12, Number 4, 2007, pp 1143-1168.
- [22] Fishbein, M. and Ajzen, I. *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA, 1975.
- [23] Friedman, B., Khan Jr, P. H., and Howe, D. C. “Trust online,” *Communications of the ACM*, Volume 43, Number 12, 2000, pp 34-40.
- [24] Gefen, D., Karahanna, E., and Straub, D. W. “Trust and TAM in online shopping: An integrated model,” *MIS quarterly*, 2003, pp 51-90.
- [25] Hsu, C. L., and Lu, H. P. “Consumer behavior in online game communities: A motivational factor perspective,” *Computers in Human Behavior*, Volume 23, Number 3, 2007, pp 1642-1659.
- [26] Igbaria, M., and Iivari, J. “The effects of self-efficacy on computer usage,” *Omega*, Volume 23, Number 6, 1995, pp 587-605.
- [27] Kline, R.B. *Principles and Practice of Structural Equation Modeling (2nd Edition ed.)*. The Guilford Press, New York, 2005.
- [28] Koufaris, M. “Applying the technology acceptance model and flow theory to online consumer behavior,” *Information systems research*, Volume 13, Number 2, 2002, pp205-223.
- [29] Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., and Scherlis, W. “Internet paradox: A social technology that reduces social involvement and psychological well-being?,” *American psychologist*, Volume 53, Number 9, 1998, p 1017.
- [30] Legris, P., Ingham, J., and Collerette, P. “Why do people use information technology? A critical review of the technology acceptance model,” *Information & management*, Volume 40, Number 3, 2003, pp 191-204.
- [31] Liu, I. F., Chen, M. C., Sun, Y. S., Wible, D., and Kuo, C. H. “Extending the TAM model to explore the factors that affect Intention to Use an Online Learning Community,” *Computers & Education*, Volume 54, Number 2, 2010, pp 600-610.
- [32] Marwick, A. “ ‘I’m a Lot More Interesting than a Friendster Profile’: Identity Presentation, Authenticity and Power in Social Networking Services,” *Association of Internet Researchers*, 2005, p 6.
- [33] McKenna, K. Y., and Bargh, J. A. “Plan 9 from cyberspace: The implications of the Internet for personality and social psychology,” *Personality*

- and social psychology review, Volume 4, Number 1, 2000, pp 57-75.
- [34] Nahapiet, J., and Ghoshal, S. "Social capital, intellectual capital, and the organizational advantage," *Academy of management review*, 1998, pp 242-266.
- [35] Nunnally, J. C. *Psychometric theory (2nd e.d.)*. McGraw-Hill, New York, 1978.
- [36] Putnam, R. D. "The prosperous community: social capital and public life," *The american prospect*, Volume 4, Number 13, 1993, pp 35-42.
- [37] Radicchi, F., Castellano, C., Cecconi, F., Loreto, V., and Parisi, D. "Defining and identifying communities in networks," *Proceedings of the National Academy of Sciences of the United States of America*, Volume 101, Number 9, 2004, pp 2658-2663.
- [38] Rotter, J. B. "Generalized expectancies for interpersonal trust," *American Psychologist*; *American Psychologist*, Volume 26, Number 5, 1971, pp 443.
- [39] Steinfield, C., Ellison, N. B., and Lampe, C. "Social capital, self-esteem, and use of online social network sites: A longitudinal analysis," *Journal of Applied Developmental Psychology*, Volume 29, Number 6, 2008, pp 434-445.
- [40] Straub, D. W. "Validating instruments in MIS research," *MIS quarterly*, 1989, pp 147-169.
- [41] Sun, H., and Zhang, P. "Causal relationships between perceived enjoyment and perceived ease of use: An alternative approach," *Journal of the Association for Information Systems*, Volume 7, Number 9, 2006, pp 618-645.
- [42] Teo, H. H., Chan, H. C., Wei, K. K., and Zhang, Z. "Evaluating information accessibility and community adaptivity features for sustaining virtual learning communities," *International Journal of Human-Computer Studies*, Volume 59 Number 5, 2003, pp 671-697.
- [43] Venkatesh, V. "Creation of favorable user perceptions: exploring the role of intrinsic motivation," *MIS quarterly*, 1999, pp 239-260.
- [44] Venkatesh, V. "Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model," *Information systems research*, Volume 11, Number 4, 2000, pp 342-365.
- [45] Venkatesh, V., and Morris, M. G. "Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior," *MIS quarterly*, Volume 24, Number 1, 2000, pp 115-140.
- [46] Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. "User acceptance of information technology: Toward a unified view," *MIS quarterly*, 2003, pp 425-478.
- [47] Williams, D. "On and off the 'net: Scales for social capital in an online era," *Journal of Computer-Mediated Communication*, Volume 11, Number 2, 2006.
- [48] Zhou, T. "Understanding online community user participation: a social influence perspective." *Internet Research*, Volume 21, Number 1, 2011, pp 67-81.

AUTHOR BIOGRAPHIES

Dr. Bharat Bhasker is a Professor in the area of Information Technology and Systems, at Indian Institute of Management Lucknow, India. He holds a Bachelor's degree in Electronics and Communications Engineering from University of Roorkee, India; Master's degree and Doctorate in Computer Science from Virginia Polytechnic Institute and State University, USA. Prior to joining IIM Lucknow, he was with MDL Information Systems and Sybase Inc., California, USA and was the architect of the massively parallel DBMS, Sybase MPP. He also served as a Visiting Professor of Information Systems, Business Management School, University of Maryland, University of California, and University of Texas, USA. His research interests include Distributed Database Management, Data Mining, Personal Recommendation Systems, and Agent based Electronic Shopping. He has also authored two books on Electronic Commerce.

Mayank Sharma is a doctoral student in Information Technology and Systems, at Indian Institute of Management Lucknow, India. He completed his Bachelor's degree in Electronics and Communications Engineering from National Institute of Technology, Calicut, India. He has worked as software developer at Tech Mahindra Ltd. His current research interests include Online Social Network, Online Communities, Information System Theories and Data Mining.

Dr. Pradeep Kumar did his Ph.D. from Hyderabad Central University in Computer Science and M.Tech from B.I.T.-Mesra, Ranchi (India) in Computer Science is an academician with Indian Institute of Management Lucknow. He was associated with SET Labs, Infosys Technologies Ltd as a researcher. He served Institute for development and research in Banking Technology (IDRBT), Established by Reserve Bank of India, as a Research Fellow. His area of interest includes Data Warehousing, Data Mining, Web Mining, Text

Mining and big data analytics. In his credit he has more than 30 authored research papers in international journals and conferences of repute.

APPENDIX A: CONSTRUCTS AND MEASUREMENT ITEMS

Items	Constructs and Measurement Items
Social Networking Site Usage [21]	
SNSU1	Social networking is part of my everyday activity
SNSU2	I am proud to tell people I am on a particular social networking site
SNSU3	I feel out of touch when I haven't logged onto social networking site for a while
SNSU4	I feel I am a part of the online social network community
SNSU5	Social networking has become part of my daily routine
SNSU6	I would be sorry if the social networking site I am using shuts down.
Social Networking Site Self Efficacy [20]	
SE1	I feel confident to understand terms/words related to the social networking site.
SE2	I feel confident to understand the features of the social networking site.
SE3	I feel confident trouble shooting problems encountered in the social networking site.
SE4	I feel confident explaining why a task cannot be performed on the social networking site.
SE5	I feel confident using the social networking site to gather information.
SE6	I feel confident learning advance features within a social networking site.
Bonding Social Capital [47]	
BOSC1	There is someone in online community that I can turn to for advice about making very important decisions.
BOSC2	There are several people in online community whom I trust to help solve my problems.
BOSC3	There is no one in online community with whom I feel comfortable talking to about intimate personal problems.
BOSC4	When I feel lonely, there are several people in online community that I can talk to.
BOSC5	If I needed an emergency loan of Rs.5000, I know someone in online community that I can turn to.
BOSC6	The people I interact with in online community would put their reputation on the line for me.
BOSC7	The people I interact with in online community would be good job references for me.
BOSC8	The people I interact with in online community would share their last rupee with me.
BOSC9	I do not know people in online community well enough to get them to do anything important.
BOSC10	The people I interact with in online community would help me fight an injustice.
Bridging Social Capital [47]	
BRSC1	Interacting with people in online community makes me interested in things that happen outside of my town.
BRSC2	Interacting with people in online community makes me want to try new things.
BRSC3	Interacting with people in online community makes me interested in what people unlike me are thinking.
BRSC4	Talking with people in online community makes me curious about other places in the world.
BRSC5	Interacting with people in online community makes me feel like part of a larger community.

BRSC6	Interacting with people in online community makes me feel connected to the bigger picture.
BRSC7	Interacting with people in online community reminds me that everyone in the world is connected.
BRSC8	I am willing to spend time to support general online community activities.
BRSC9	Interacting with people in online community gives me new people to talk to.
BRSC10	In online community I come in contact with new people all the time.
Interpersonal Trust [6,9]	
IT1	Members in the online community will not take advantage of others even when the opportunity arises.
IT2	Members in the online community will always keep the promises they make to one another.
IT3	Members in the online community behave in a consistent manner.
IT4	Members in the online community are truthful in dealing with one another.
Social Influence [46]	
SI1	Most people that are important to me think that I should participate in the community.
SI2	Most people that have influence on my behavior think that I should participate in the community.
System Trust [6]	
ST1	I believe that the community would act in my best interest.
ST2	The community is truthful in its dealings with me.
ST3	The community would keep its commitments.
ST4	The community is sincere and genuine.
Perceived enjoyment [25]	
PE1	The process of participating in online community is enjoyable.
PE2	While participating in online community, I experience pleasure.
PE3	Overall, I believe that online community is playful.
Intention to Use [44]	
IU	I intend to use the online community.
Perceived usefulness [28,42]	
PU1	Using the features of social networking site will improve my understanding of community system.
PU2	Using the features of social networking site in community system will enable me to communicate and discuss with my friends.
PU3	Using the features of social networking site in community system will help satisfy my social needs.
PU4	Overall the features of social networking site in community system are effective.
Perceived ease of use [28,42]	
PEOU1	The features of the community system are easy for me to learn.
PEOU2	The functionalities provided in the community system are easy for me to use.
PEOU3	Overall, the community system is easy for me to operate.