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Antecedents of an experienced sense of virtual community

Lisbeth Tonteri [1], Miia Kosonen *, Hanna-Kaisa Ellonen [1], Anssi Tarkiainen [1]

Lappeenranta University of Technology, School of Business, P.O. Box 20, 53851 Lappeenranta, Finland

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ABSTRACT

Sense of virtual community (SOVC) reflects the feeling that individual members have of belonging to an online social group. Yet there is a lack of investigation focusing on its individual-level antecedents. We argue that in order to enhance understanding of how SOVC develops we first need to distinguish between the individual expectations, actions, and the resulting community-related feelings. Drawing upon the uses and gratifications approach, we explore the community members' expected benefits, their linkages with different types of community participation and consequently with the experienced SOVC. We tested the hypotheses on a sample of 395 members of a virtual community hosted by a Finnish business newspaper. The findings suggest that both forms of participation – reading and posting messages – have a positive impact on SOVC, but the expected benefits differ. Participation by reading messages is mainly driven by the expectation of cognitive benefits, while posting messages seems to be largely driven by the anticipation of both social and personal integrative benefits. Our study contributes by providing a refined SOVC conceptualization and operationalization for virtual-community research, and by opening up the individual-level actions that build up a sense of virtual community.

1. Introduction

An increasing number of users and consumers today affiliate with each other through online channels in order to interact around shared interests and form virtual communities. Scholars focusing on virtual communities noted early on that their members could experience a sense of virtual community (SOVC), an online equivalent to the sense of community (SOC) experienced in traditional face-to-face encounters (Baym, 1997; Blanchard & Markus, 2004; Jones, 1997; Roberts, Smith, & Pollock, 2002). SOVC thus reflects the feeling that individual members have of belonging to an online social group. It is a focal construct explaining community dynamics and facilitating the vitality of the virtual community (Blanchard, 2008; Blanchard & Markus, 2004; Koh & Kim, 2003; Sangwan, Guan, & Siguaw, 2009). Hence, it would be valuable to understand the conditions under which SOVC develops.

A majority of studies on SOVC have focused on the community-level social processes and practices that appear to have an impact on the individual's experience of a virtual community (Blanchard, 2008; Blanchard & Markus, 2004; Ellonen, Kosonen, & Henttonen, 2007; Roberts et al., 2002). However, although SOVC is an individual-level concept, there is a lack of investigation focusing on its individual-level antecedents (Koh & Kim, 2003). What types of individual-level actions lead to an experienced sense of virtual community?

SOVC is a relatively new research domain (Blanchard, 2008; Blanchard & Markus, 2004; Obst, Smith, & Zinkiewitz, 2002; Roberts et al., 2002) and hence the concept is not fully developed or established. Current conceptualizations centre on an individual's feelings, although inherent in many recent definitions are elements of expectation (i.e. needs) or action (i.e. sharing support). We argue that in order to enhance understanding of how a sense of virtual community develops we need to distinguish between the individual expectations, actions, and the resulting community-related feelings.

In the following we utilize the uses and gratifications (U&G) approach (Katz, Gurevitch, & Haas, 1973; Katz, Blumler, & Gurevitch, 2003) in exploring the expected benefits to community members. We adopt Nambisan and Baron's (2007) categorization of cognitive, social-integrative, personal-integrative, and hedonic types of expected benefits, and explore their linkages with different types of community participation (reading and posting messages), and consequently with the experienced SOVC. We test the hypotheses on a sample of 395 members of a virtual community hosted by a Finnish business newspaper.

The rest of the paper is organized as follows. Section 2 describes the conceptual model and sets out our hypotheses. Then we explain the methodology we used in our empirical research. We report the findings of the study in Section 4. Finally, we discuss the implications and suggest some promising avenues for future research.

* Corresponding author. Tel.: +358 40 480 9428; fax: +358 5 621 7299.
E-mail addresses: lisbeth.tonteri@gmail.com (L. Tonteri), miia.kosonen@lut.fi (M. Kosonen), hanna-kaisa.ellonen@lut.fi (H.-K. Ellonen), anssi.tarkiainen@lut.fi (A. Tarkiainen).
[1] Fax: +358 5 621 7299.

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2. Theoretical background

In this section we introduce the SOVC concept and its various dimensions, discuss virtual-community participation and the related expectations, and develop our research model and hypotheses.

2.1. A sense of virtual community

The SOVC concept has its roots in the Sense of community (SOC) framework developed by McMillan and Chavis (1986). They originally defined SOC as the feeling members have of belonging to a community, the belief that members matter to one another and to the community, and a shared faith that their needs will be met through their commitment to the community. These four elements, membership, influence, integration and need fulfilment, and shared emotional connection, also apply in recent SOVC studies (Blanchard, 2008; Blanchard & Markus, 2004; Koh & Kim, 2003; Sangwan et al., 2009). SOVC has been explored in different types of virtual communities, including blogs (Blanchard, 2004), listservs and bulletin boards (Blanchard, 2008), and discussion forums (Blanchard & Markus, 2004; Ellonen et al., 2007; Koh & Kim, 2003).

A sense of virtual community as a construct is complex and still lacks an established conceptualization. What are common to most definitions are the dimensions of membership and a shared emotional connection (Blanchard, 2008; Blanchard & Markus, 2004; Ellonen et al., 2007; Koh & Kim, 2003). However, there are also differences in how the original SOC dimensions have transferred to SOVC. Whereas some authors consider influence a focal aspect of SOVC (Koh & Kim, 2003; Roberts et al., 2002), manifested as taking responsibility and engaging in supportive tasks in the community, for example, others posit that influence may not be as important in virtual settings as in traditional communities (Blanchard, 2008; Blanchard & Markus, 2004; Obst et al., 2002). However, Blanchard and Markus (2004) also found evidence that members feel an obligation and the need to 'give back' to the online collective (see also Wasko & Faraj, 2000. In our view, SOVC investigations should pay attention to influencing and being influenced by the community.

Identity and identification (Blanchard, 2008; Blanchard & Markus, 2004; Ellonen et al., 2007) are recognized as novel dimensions of SOVC that are of particular relevance to virtual communities. Traditionally there have been two different perspectives on identity, the individual and the social. A number of virtual-community scholars have described how members create their own virtual identities online (Baym, 1997; Rheingold, 1993; Wellman & Gulia, 1999), and how they are able to identify other members and link community actions to certain identities (Blanchard & Markus, 2004). The focus of identification may also switch to the collective level in wider communities that allow anonymous interaction (Ellonen et al., 2007). The SOVC conceptualization by Obst et al. (2002) incorporates the notion of social identity, describing an individual's self-concept derived from perceived membership in a social group (Ashforth & Mael, 1989; Turner, 1987). Social identity has been identified important for virtual groups (McKenna & Green, 2002; Spears & Lea, 1992), the implication being that members may become committed to the purpose or topic in question (Ren, Kraut, & Kiesler, 2007). Our view in this paper is thus that SOVC reflects both individual identities and a shared social identity among virtual-community members.

For the purposes of this study we define a sense of virtual community as human experience of a community feeling in a virtual environment. Hence, we operationalize SOVC as comprising five different dimensions: the feeling of *membership* and one's rights and obligations in the community, the feeling of *influence* in the community and of being influenced by the community, the feeling among the individual members of having a distinct *identity* in the community, the feeling of having a common *social identity* and identifying with the community, and the feeling of a strong *emotional connection* among the community members.

In this sense our conceptualization of SOVC differs from the one put forward by Blanchard and Markus (2004) for example, who see integration and need fulfilment in terms of mutual support in the virtual community. We note the difference between individual members' feelings and perceptions about the community, and actual community-like behaviour: in our view, mutual support is a community-level phenomenon that takes the form of participation. Similarly, we believe that need fulfilment precedes the development of SOVC rather than being one of the components (Ellonen et al., 2007; Koh & Kim, 2003). Whereas need fulfilment mainly reflects member expectations, SOVC focuses on the current state of an individual member's feelings of belonging to the community (Koh & Kim, 2003). Hence we differentiate the individual's *expectations* and *actions* from his or her *feeling* of belonging, and consider them both antecedents of SOVC.

2.2. Expected benefits and virtual-community participation

Differentiating between expectations and actual experiences is in line with the uses and gratifications (U&G) approach Katz et al., 1973, 2003; McQuail, 1983; Nambisan & Baron, 2007, according to which the assumed benefits shape individuals' media usage. Katz et al. (1973, 2003) identify the types of benefits people aim to obtain from their media usage. As Elliott and Rosenberg (1987) note, in communication studies the U&G approach has focused on people's motivation to use a new technology that has reached the stage of mass communication, and also on finding out how the expected benefits shape the users' future interactions in different media environments.

In recent years researchers have also applied the U&G approach in order to enhance understanding of user participation in virtual-customer environments (Nambisan & Baron, 2007), user-generated media sites (Shao, 2009), and online games (Wu, Wang, & Tsai, 2010). We follow Nambisan and Baron's (2007) categorization in this study in order to explore the benefits gained through virtual-community participation. A brief description follows.

Firstly, *cognitive* benefits refer to gaining valuable knowledge and improving learning opportunities (Nambisan & Baron, 2007). For instance, members of a virtual community may acquire knowledge about the features of a certain product or technology, or gain access to up-to-date information. We operationalize expected cognitive benefits accordingly as expectations of developing personal knowledge and problem-solving capabilities. Secondly, *social integrative* benefits are related to social ties between participants that are established and develop over time, such as the virtual-community relationships that give members the sense of belonging to a group (Kollock, 1999; Nambisan, 2002; Nambisan & Baron, 2007). Our operational definition for expected social integrative benefits is the expectation of being able to network and communicate with virtual community members. Thirdly, *personal integrative* benefits manifest as achieving a sense of self-efficacy, in other words having an influence on the surrounding social collective (Bandura, 1997; Blanchard & Markus, 2004; Hsu, Ju, Yen, & Chang, 2007). For instance, members may improve their personal status and reputation by sharing valuable knowledge within the community. Accordingly, our operational definition for expected personal integrative benefits is the expectation of getting satisfaction from enhancing one's status as an expert and influencing others. Finally, *hedonic* or affective benefits provide pleasurable experiences to the user (Muniz & O'Guinn, 2001; Nambisan & Baron, 2007). Community participation may open up opportunities for enjoyable experiences on the one hand, and for mentally or intellectually

stimulating interaction on the other. Our operational definition for expected hedonic benefits is the expectation of feelings of amusement, relaxation and/or refreshment.

The consumer's virtual participation in a virtual community comprises all the activities that are carried out in the community in order to obtain and share information and experiences (Casaló, Flavián, & Guinalíu, 2007; Koh & Kim, 2004). Virtual participation is typically computer-mediated action and interaction in different virtual communities, although it may also involve face-to-face meetings between community members (Muniz & O'Guinn, 2001). Virtual participation allows individuals to share experiences around a common interest (Hagel & Armstrong, 1997), and to exchange knowledge, ideas and emotional support (Casaló et al., 2007; Koh & Kim, 2004). Some scholars see virtual participation as visits to websites (Srinivasan, Anderson, & Ponnavolu, 2002), even if the term 'participation' here implies interactivity and not merely consuming online content (Shao, 2009). Hence, virtual participation is related to interacting with other community members (Kosonen, 2008) in order to help others (Koh & Kim, 2004) and develop a positive community atmosphere (McWilliam, 2000).

There are many ways of participating in virtual communities (Mallat, Tinnilä, & Vihervaara, 2004; Nonnecke, Andrews, & Preece, 2006): reading messages posted by others, posting messages, and engaging in dialogue with others by answering messages posted by others. Since it may be difficult to differentiate between posting messages and answering messages posted by other members, we have chosen to concentrate on two forms of virtual-community participation, namely participation in the form of reading messages and participation in the form of posting messages. The two forms differ in terms of how much activity is required from the consumers, and it is highly likely that they are driven by different motives. Participation by reading is operationalized as reading discussion forums actively in order to get information and help from other participants of the virtual community. Participation by posting means sending messages or answering questions to share information and own experiences in the virtual community. Similar operationalizations of participation are applied in existing research (Shang, Chen, & Liao, 2006).

2.3. Research model

According to Sicilia and Palazón (2008), the consumer's online participation is usually goal-oriented, and the key motivating factors are the benefits that give functional, social or entertaining value. Thus, it is likely that the expected benefits will have an impact on participation in the virtual community.

Virtual communities provide spaces for exchanging both factual and experiential knowledge (Nambisan & Baron, 2007). In bridging together knowledgeable individuals a community offers its members unique opportunities for learning, especially when it focuses on specialized 'expert knowledge' that cannot easily be obtained elsewhere (Ardichvili, Page, & Wentling, 2003; Jeppesen & Frederiksen, 2006). Expectations about the potential learning benefits may thus lead to increased participation in the virtual community. We based our first two hypotheses on this logic:

H1a. Expected cognitive benefits have a positive influence on virtual-community participation in the form of reading messages.

H1b. Expected cognitive benefits have a positive influence on virtual-community participation in the form of posting messages.

Prior studies on virtual communities attest to the significance of establishing social ties that provide a sense of belonging, and having a group of peers that can be reached any time and anywhere (Chiu, Hsu, & Wang, 2006; Kakuko, 2002; Ley, 2007). Indeed, Blanchard (2008) points out how the role of individual relationships is accentuated in virtual-community settings compared to face-to-face communities: being able to identify others is necessary in order to keep members in the community. Various tools and practices are used to support the establishment of social relationships, ranging from disclosing personal information to organizing off-line activities that allow members to better identify with and understand other members, and thus enhance the cohesiveness of the community (Koh & Kim, 2003). Hence, we posit that positive expectations of a community's ability to support the establishment of valuable social ties are also likely to increase participation.

H2a. Expected social-integrative benefits have a positive influence on virtual-community participation in the form of reading messages.

H2b. Expected social-integrative benefits have a positive influence on virtual-community participation in the form of posting messages.

We have highlighted the importance of learning from other virtual-community members and their identities. Another key issue concerns creating a personal identity and being able to affect the surrounding social collective through participation. Ma and Agarwal (2007) note how developing one's own identity and assuming that others are aware of and understand it may lead to increased participation in and satisfaction with the virtual community. Furthermore, communities focused on specialized knowledge give their members opportunities to gain in personal status and reputation as an expert, thus contributing to the development of their personal identity and motivating them to participate (Hsu et al., 2007; Wasko & Faraj, 2005).

H3a. Expected personal integrative benefits have a positive influence on virtual-community participation in the form of reading messages.

H3b. Expected personal integrative benefits have a positive influence on virtual-community participation in the form of posting messages.

Playfulness and enjoyment are recognized as critical factors reflecting user acceptance of websites in general (Moon & Kim, 2001). It is thus likely that a virtual community's ability to provide pleasurable experiences is related to levels of participation, irrespective of its focus and scope. According to Koh and Kim (2003), members whose hedonic needs are met by engaging in interaction in the virtual community are likely to become attached to that community, which results in increased participation.

H4a. Expected hedonic benefits have a positive influence on virtual-community participation in the form of reading messages.

H4b. Expected hedonic benefits have a positive influence on virtual-community participation in the form of posting messages.

It is argued that an individual's virtual participation affects his or her perception and experiences of a virtual community (Casaló et al., 2007; Thompson & Sinha, 2008). Participation is tightly linked with the community's success in terms of helping it to achieve its goals, while signalling member satisfaction and involvement (Cothrel, 2000). At the same time, participation through sharing information entails a social dilemma: individual

users benefit the most if they do not contribute themselves but only use information that others provide (Cress, Kimmerle, & Hesse, 2009; Jian & Jeffres, 2006). This poses a challenge for maintaining social exchange in online settings. However, research on both virtual communities (Blanchard & Markus, 2004; Ellonen et al., 2007; Sangwan et al., 2009) and organizational computer-supported information sharing (Cress et al., 2009; Jian & Jeffres, 2006) points out how identification and positive orientation with the collective increase the members' willingness to contribute. The shared interest underlying the online collective may provide a fruitful basis for identification and thus encourage participation (Blanchard & Markus, 2004; Wasko & Faraj, 2005). According to Blanchard and Markus (2004), members of virtual communities engage in community-like behaviour such as helping others and giving mutual support in order to achieve certain objectives, and SOVC results from continued engagement in such behaviour. Through their participation, members exchange information and give mutual support themselves, or they may perceive others doing so, and this is likely to contribute to their positive feelings towards the community. In addition, participation in community activities is necessary in terms of establishing relational ties and creating identities. Indeed, various studies point out how participation precedes the development of SOVC (Blanchard & Markus, 2004; Ellonen et al., 2007; Sangwan et al., 2009; Yoo, Suh, & Lee, 2002). Hence, we posit:

H5a. Virtual-community participation in the form of reading messages has a positive influence on experienced SOVC.

H5b. Virtual-community participation in the form of posting messages has a positive influence on experienced SOVC.

Fig. 1 depicts the research model applied in the study.

3. Research design, methods and data

3.1. Data collection and sample

The empirical study reported in this paper focuses on members of the online discussion forums of a Finnish business newspaper. The newspaper website hosts one of the most active discussion forums in Finland. The data was collected by means of an online survey conducted in 2009 in cooperation with the newspaper. Announcements publicizing the survey appeared on the newspaper website and discussion forums, showing a link to the electronic questionnaire that was open for 1 week. Active members (i.e. those who regularly read the contributions and/or wrote on the discussion forum) of the online community were invited to take part in the survey. The respondents responded to the survey of their own accord. This type of method is common in studies focusing on online contexts (Bagozzi & Dholakia, 2006; Casaló, Flavián, & Guinalíu, 2008; Steenkamp & Geyskens, 2006), and allows the sampling of users who meet the study requirements. We received a total of 592 responses; having deleted the incomplete answers we were left with 395 useful responses for use in the regression analysis.

The majority of the respondents (89%) were men. The youngest was 16 years old and the oldest was 79, but the biggest group (32%) comprised those aged between 31 and 40 years. The gender and age distributions in the sample corresponded to the information obtained in interviews with the newspaper representatives. The majority of the respondents (86%) were not subscribers to the print version of the newspaper, reading the news on the website or in the paper version at work. Nearly half of them (47%) indicated that they needed the information provided by the newspaper and its website in their work.

Most of the respondents were experienced users of the websites: 51 per cent had been using them from between 1 and 4 years, and 39 per cent from between 5 and 10 years. The discussion forums were also very familiar: 58 per cent of the respondents had been using them from between 1 and 4 years, and 32 per cent from between 5 and 10 years. The majority visited the websites several times a day (47%) or daily (32%), and most also visited the discussion forums daily (37%) or several times a day (34%). In addition, for the majority of respondents using the discussion forum, participation involved reading messages very often (42.76%), and only a few read them very rarely or never (1.75%). Approximately 68 per cent had posted messages to the discussion forums. All in all, the sample represents active discussion-forum users whose demographic profile closely matches the website-visitor profile.

3.2. The development of the survey instrument

The measures we used were mainly adapted from previous studies, and carefully selected from the relevant literature. We adapted the 12 items measuring the expected benefits of virtual participation from Nambisan and Baron (2007). However, we developed the 12 items measuring virtual participation for the purpose of this study. We differentiated between two types of participation: in the form of reading or of writing messages. The 17 items measuring SOVC were adapted from four different studies. For the most part they were based on Blanchard's (2007) SOVC measure, but we adapted the social-identity part from Mael and Ashforth

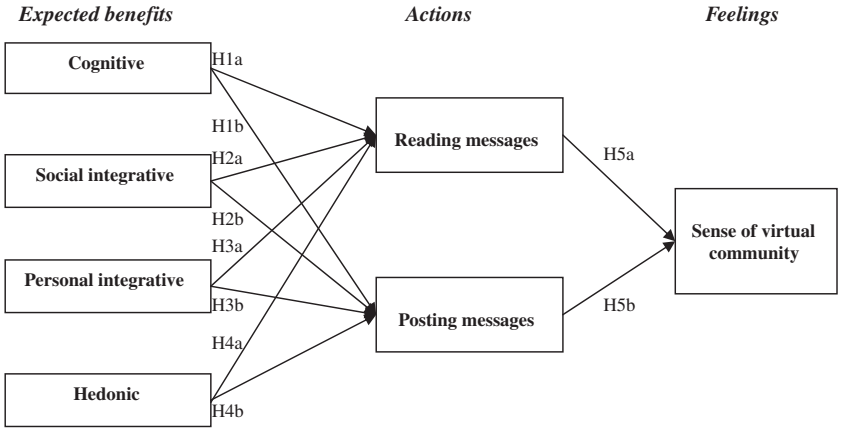

Fig. 1. Research model. The proposed relationships between four types of expected benefits, reading and posting messages, and feelings of SOVC.

(1992), with the addition of one item from Algesheimer, Dholakia, and Herrmann (2005), and based the influence part on Chavis, Hogge, McMillan, and Wandersman (1986). We used a Likert-type scale ranging from one to seven (1 = strongly disagree, 7 = strongly agree) for all the measures. The survey instrument was pretested in order to ensure that the measurement items are clear and unambiguous, and that the web instrument functions properly. We invited comments from a total of 38 people from the newspaper staff and the academic community, and people who were similar in demographic profile to the final sample. The pre-test was conducted in four stages. In the first stage the aim was to ensure that the measurement-item wordings were clear and understandable. Feedback was obtained from eight persons. In the second stage the aim was to check that the measurement items were univocal. Feedback was obtained from 11 persons. In the third stage the aim was to ensure the functionality of the electronic questionnaire, and feedback was obtained from 12 persons. Finally, in the fourth stage of the pre-test, overall comments on the questionnaire were invited from seven persons. The needed adaptations were made during each pre-test stage. Appendix A lists the items in English.

3.3. Measure validation

The final survey was conducted in Finnish. In order to ensure the reliability and validity of the measures we subjected all of the scales to further exploratory analysis, and removed items that were poorly or cross-factor loaded from the final scales. All of the factor loadings were above 0.45. We assessed the reliability of the measurement scales by means of Cronbach's alpha, and the reliability of individual measurement items was assessed with item-to-total correlations (see Appendix A). The results of the reliability measures are given in the appendix. We used Pearson correlation coefficients to test the strength of the association between the different types of expected benefits and participation, and SOVC. Table 1 presents the values in the form of a correlation matrix. The final scales are also given in the appendix.

It is clear from the matrix that all the correlations, except those between cognitive and hedonic benefits, were significant at $p < 0.01$ and suitable for regression analysis.

4. Data analysis and results

We used SAS Enterprise Guide 4.1 software in the data analysis. The hypotheses were tested on the final sample of 395 by means of confirmatory regression analysis, the results of which are presented in Table 2.

The data supported the hypotheses positing a positive influence of anticipated cognitive benefits on participation in the form of reading (H1a) and posting (H1b), although the evidence supporting H1b was relatively weak ($\beta = .061$; $p < 0.10$) compared to support for H1a ($\beta = .603$; $p < 0.01$). There was weak support for Hypothesis H2a in that there was a positive influence of expected social-integrative benefits on participation in the form of reading messages ($\beta = .066$; $p < 0.10$). The positive influence was stronger in the case of participation in the form of posting messages, thus supporting Hypothesis H2b ($\beta = .199$; $p < 0.01$). There was support for both H3a and H3b in that the expected personal integrative benefits had a positive influence on participation in the form of both reading ($\beta = .132$; $p < 0.01$) and posting ($\beta = .493$; $p < 0.01$) messages. There was also support for H4a and H4b, given the positive influence of hedonic benefits on participation in the form of both reading ($\beta = .099$; $p < 0.01$) and posting ($\beta = .087$; $p < 0.01$) messages.

Overall, the different expected benefits accounted for about 41 per cent of the variance in participation in the form of reading messages. It seems from the values of the standardized regression coefficients that expected cognitive benefits have the strongest impact on participation in the form of reading messages, and that the second strongest predictor is the expectation of personal integrative benefits. In turn, nearly 44 per cent of the variance in participation in the form of posting messages was attributable to the anticipated benefits, and the strongest predictors were anticipated personal and social-integrative benefits.

Both hypotheses H5a and H5b were supported, indicating that virtual-community participation in the form of reading ($\beta = .408$; $p < 0.01$) and posting ($\beta = .456$; $p < 0.01$) messages has a positive influence on experienced SOVC. Overall, participation accounted for about 52 per cent of the variance in SOVC. Participating by posting messages seemed to have a slightly stronger impact than participating by reading.

Fig. 2 gives a picture of the results.

5. Discussion and conclusions

It seems from the results of the current study that participation in the virtual community in the form of reading messages is mainly driven by the expectation of cognitive benefits, which in this case means obtaining knowledge on business- and economics-related issues. Thus the discussion forums clearly complement the newspaper content in bringing more insights into the published articles.

Personal integrative motives, in other words improving one's status and reputation within the community, also constituted a significant predictor of this type of participation. This does not necessarily mean that people read the messages in order to enhance their status in the virtual community. It could as well be that they seek deeper knowledge for use in other communities (e.g. at work) in order to gain status as an expert. Thus, it could be that the common denominator for these anticipated benefits is the knowledge that is shared in the virtual community, either obtaining it or using it to improve one's own status.

Participation in the form of posting messages, in turn, seems to be largely driven by the anticipation of both social and personal integrative benefits, the latter apparently playing the bigger role. This is in line with findings reported by Shao (2009): producing content online is driven by personal integrative motives, in other words self-actualization and self-efficacy. Given that both personal and social integrative motives are related to an individual's role in

Table 1
The correlations between the summated scales.

	Personal	Cognitive	Hedonic	Social	Posting (m)	Reading (m)
Personal integrative benefits	1					
Cognitive benefits	0.193*					
Hedonic benefits	0.161*	0.002				
Social integrative benefits	0.614*	0.194*	0.144*			
Posting messages	0.607*	0.148*	0.199*	0.508*		
Reading messages	0.301*	0.630*	0.132*	0.276*	0.389*	
SOVC	0.553*	0.310*	0.223*	0.479*	0.615*	0.585*

* Correlation is significant at the 0.01 level.

Table 2
The results of the regression analyses.

		R^2	Adj. R^2	F	Sig
		0.412	0.408	102.48	<.0001
	B	beta	t	Sig.	Tol
Participating by reading messages					
(Constant)	0.958	–	6.58	0.000	–
Personal integrative benefits	0.130	0.132	3.47	0.001	0.658
Cognitive benefits	0.543	0.603	19.15	0.000	0.961
Hedonic benefits	0.085	0.099	3.15	0.002	0.968
Social integrative benefits	0.069	0.066	1.71	0.088	0.644
		0.437	0.433	113.55	<.0001
Participating by posting messages					
(Constant)	−0.102	–	−0.38	0.702	–
Personal integrative benefits	0.694	0.493	12.89	0.000	0.658
Cognitive benefits	0.079	0.061	1.94	0.053	0.961
Hedonic benefits	0.107	0.087	2.75	0.006	0.968
Social integrative benefits	0.299	0.199	5.14	0.000	0.644
		0.519	0.518	316.99	<.0001
SOVC					
(Constant)	0.665	–	4.82	0.000	–
Participating by posting messages	0.321	0.456	14.68	0.000	0.848
Participating by reading messages	0.411	0.408	13.12	0.000	0.848

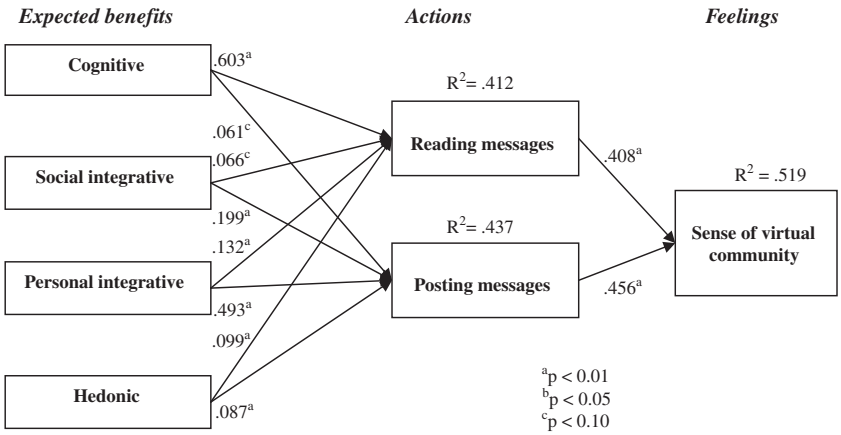

Fig. 2. The results of the regression analysis. Standardized regression coefficients of the relationships between the four types of expected benefits, reading and posting messages, and feelings of SOVC.

and relationship with the community, one could speculate that participation in the form of posting is related more strongly to interaction with people within the virtual community. Shao (2009) also points out how interactive forms of participation are typically related to social-integrative benefits and contributing to community development. In order to fulfil their social-interaction needs users may interact directly with other members on the message boards, or indirectly by rating the content, for example.

What is of significance is that whatever the form (and whatever the motivation), participation has a positive influence on the development of a sense of virtual community. Of course, in the form of posting the messages it has a slightly stronger influence, but both means of participation act as SOVC building blocks.

The contributions of this study are threefold. Firstly, it continues the conceptual development of a sense of virtual community in differentiating between the individual's initial expectations related to participation, his or her behaviour in the community and experienced feelings towards it. The refined conceptualization and operationalization of SOVC will support the development of this relatively new research field (Blanchard, 2008; Blanchard & Markus, 2004; Obst et al., 2002; Roberts et al., 2002).

Secondly, in focusing on the individual-level antecedents the present study complements existing community-level research (Blanchard, 2008; Blanchard & Markus, 2004; Ellonen et al., 2007; Koh & Kim, 2003) by opening up the individual-level actions that build up a sense of virtual community. Although both forms of participation studied (reading and writing messages) have a positive impact on SOVC, the expected benefits differ. This finding is at odds with Nonnecke et al. (2006), who claim that the objectives of readers and writers are similar, in other words getting information. Paterson (2009), on the other hand, argues that the social nature of virtual communities invites participation. According to the results of the present study, however, whereas readers look for information, it is the writers who mainly expect social and personal integrative benefits.

Thirdly, the findings of our study suggest that both reading and posting messages support the development of SOVC. The research on virtual communities tends to emphasize active participation, typically in the form of posting messages. The more passive form, in other words reading messages, or lurking (Nonnecke et al., 2006; Shang et al., 2006), is sometimes seen as a less valuable than posting content. However, it appears from the present study that spending time in the virtual community and reading messages may lead to closer attachment to the group and a sense of virtual community among members. Given that SOVC may further lead to brand loyalty and other business benefits (Koh & Kim, 2003), it is also worth considering the value of interacting with the content produced by other community members.

This study carries several implications for practising managers. Firstly, those hosting virtual communities should be aware of the value of lurking. Reading content produced by others is an essential form of participation, and given the linkage with a sense of virtual community, concrete actions could be taken in order to make the input of lurkers visible through ratings and voting tools, for example. Thus readers would contribute to the positive community-level atmosphere while simultaneously fulfilling their own information-related needs and establishing feelings of belonging. Secondly, designers of online services should take into account the fact that different groups of participants expect different benefits from their participation. This could result in various trade-offs and thus in an increased need for more personalized community sites. For instance, the most active message posters could benefit from promoting members' virtual presence and opening a richer set of channels for both private and public communication, thereby supporting the development of personal relationships (see also McKenna & Green, 2002). On the other hand, members who expect to gain valuable information by interacting mainly with the community content may find such advances unhelpful, and would rather benefit from a subtler organization of community topics and more refined search facilities.

In terms of limitations, an obvious one is that our study concerns a single community with a relatively homogeneous user profile and focuses mainly on information (rather than social) support. The findings should therefore be validated in other types of virtual communities and with different sample profiles. We also note the limitation of the sampling, which was not random in that the informants were volunteers visiting the community of their own accord. Thus, there may be some selection bias in the results, meaning that the respondents are the most active participants in the discussion forum. However, given the study focus on active participants, the bias is probably not that problematic. Future SOVC research endeavours should further investigate the processes of identification and attachment, whether driven by the establishment of personal relationships or identification with the wider social collective.

Appendix A

Measures following the factor analysis.

Measures		Cronbach's alpha	Item-to-total correlation	Scale mean	Scale variance
Expected benefits Based on Nambisan and Baron (2007)	The following statements are related to various benefits that one might expect to gain by participating in discussion forums. Please rate the extent to which the following statements describe your expectations when you started using the discussion forums hosted by this newspaper. *I expected* ...				
Cognitive		0.820		4.84	1.73
	To strengthen my knowledge of business issues		0.735		
	To increase my knowledge of business matters		0.742		
	To find solutions related to business problems		0.566		
Social Integrative		0.753		1.96	1.27
	To expand my personal network		0.607		
	To enhance connection with other participants in the discussion forum		0.607		
Personal Integrative		0.790		2.29	1.37
	To derive satisfaction from increasing other participants' knowledge of business matters		0.578		
	To enhance my status/reputation as a product expert in the community		0.601		
	To influence other people's knowledge of business matters		0.736		
Hedonic		0.838		4.36	1.89
	To refresh my knowledge		0.699		
	To get fun and amusement from the discussion forums		0.644		
	To have some relaxation time		0.761		
Participation All new items					
Participation in the form of reading messages		0.839		4.63	1.41
	I read the discussion forums in order to get information.		0.667		
	I get well-informed answers to my business-related questions.		0.539		
	I get general information from other participants		0.726		
	The personal experiences of other participants are helpful to me.		0.708		
	I enjoy reading about the personal experiences of other participants		0.616		

(*continued on next page*)

Appendix A (*continued*)

Measures		Cronbach's alpha	Item-to-total correlation	Scale mean	Scale variance
Participation in the form of posting messages		0.963		2.84	2.88
	I send messages in order to share information with other participants		0.888		
	I share information with others		0.917		
	I willingly answer questions concerning business issues		0.870		
	I answer posted messages in order to support other participants		0.928		
	I share my own experiences in order to help other participants		0.781		
	When I share my experiences the other participants seem to understand my situation		0.897		
SOVC		0.912		3.48	1.43
Social identity Based on Mael and Ashforth (1992)	When someone praises the expertise of this discussion forum it feels like a personal compliment		0.690		
Based on Algesheimer et al. (2005)	I see myself as a part of a community of professionals that has been built up in the discussion forum		0.679		
Membership Based on Blanchard (2007)	It feels good to be a member of this discussion forum		0.700		
	I see myself as a member of this discussion forum		0.821		
	Membership of this discussion forum means a lot to me		0.795		
Emotional feelings Based on Blanchard (2007)	I feel at home in this discussion forum		0.722		
	I like this discussion forum		0.542		
	The discussion forum and its participants mean a lot to me		0.710		
Identity Based on Blanchard (2007)	Some participants in this discussion forum have become friends		0.535		
	I recognize the screen names of most participants		0.510		
Influence Based on Chavis et al. (1986)	I can influence the matters dealt with in the discussion forum if I want to		0.543		
	I care about what other participants think about my actions in this discussion forum		0.652		
	The participants of this discussion forum can influence each other		0.535		

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