Association for Information Systems
AIS Electronic Library (AISeL)

PACIS 2023 Proceedings

Pacific Asia Conference on Information Systems (PACIS)

7-8-2023

How to Promote the Sustainability of Information Sharing? A Fuzzy-set Qualitative Comparison Analysis for Lurking Behavior in Social Media Communities

Chen Juan
Anhui University of Finance and Economics, 120220004@aufe.edu.cn

Nannan Xi
Tampere University, nannan.xi@tuni.fi

Hairui Tang
Tampere University, hairui.tang@tuni.fi

Follow this and additional works at: https://aisel.aisnet.org/pacis2023

Recommended Citation

Juan, Chen; Xi, Nannan; and Tang, Hairui, "How to Promote the Sustainability of Information Sharing? A Fuzzy-set Qualitative Comparison Analysis for Lurking Behavior in Social Media Communities" (2023). *PACIS 2023 Proceedings*. 199.
https://aisel.aisnet.org/pacis2023/199

This material is brought to you by the Pacific Asia Conference on Information Systems (PACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in PACIS 2023 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

How to Promote the Sustainability of Information Sharing? A Fuzzy-set Qualitative Comparison Analysis for Lurking Behavior in Social Media Communities

Completed Research Paper

Juan Chen
School of Business Administration
Anhui University of Finance and Economics, China
120220004@aufe.edu.cn

Nannan Xi
Faculty of Management and Business
Tampere University, Finland
nannan.xi @tuni.fi

Hairui Tang
Faculty of Management and Business
Tampere University, Finland
hairui.tang@tuni.fi

Abstract

Social media communities (SMCs) have accelerated the speed and expanded the scope of information generation and dissemination. Increasing the continuity and sustainability of information provision and consumption is the prerequisite for ensuring the ecology and vitality of SMCs. Therefore, how to motivate users to actively participate in information sharing in the SMCs instead of being passive information receivers, silent information readers, or even lurkers has become key. This study aims to interpret the lurking behavior in SMCs by investigating the interplay of six main factors including situated-motivational aspects such as privacy concern, sustainability concern, shared language and rationality, and individual aspects including introversion and social self-efficacy. A fuzzy-set qualitative comparison analysis (fsQCA) is conducted based on survey data collected from 470 Chinese SMC members. The results indicate that the interplay of the aforementioned factors (presented as four different configurations) leads to lurking behavior.

Keywords: Lurking, information sharing, SMC, sustainability, fsQCA

Introduction

With the development of the internet and mobile and computing technologies, user-generated content can be easily created, acquired and shared in various digital forms within certain groups of people in online platforms and communities (Chung & Zeng, 2020; Liou et al., 2016). Different from typical online communities, social media communities (SMCs) are usually formed based on interpersonal relationships on social networking sites (Liou et al., 2016; Su et al., 2017) such as Facebook, Twitter, WeChat, and Microblog. Given that information can be delivered and shared more spontaneously, cost-effectively and efficiently in SMCs, there are more and more brands, firms and organizations seeking for ways to

motivate netizens to provide, share, retweet, and repost information and digital content (Leban et al., 2022; Pasternak, 2017). The continuity and sustainability of information sharing is directly associated with the network effect of netizens' information sharing which can further influence SMCs' ecology vitality (Chung et al., 2016). During the sharing process, the provision and consumption of information are interrelated and not separate. When netizens are sharing information with others, they are both information receivers and providers. However, one of the biggest challenges in SMCs is that many netizens are passive receivers rather than active contributors (Fernandes & Castro, 2020; Muller, 2012; Leban et al., 2022). This type of information acquisition-dominated behavior can be identified as "lurking" (Leban et al., 2022).

"Lurking" implies that netizens maintain a certain level of information consumption with little information provision, and can be interpreted as an autonomous strategy for "getting a free ride" for information. Lurking behavior prominently influences the ecology of SMCs through eroding active participation in the community. An exploration of the reasons why SMC members lurk can shed light on the underlying mechanisms of information sharing in SMCs, and further provide theoretical guidance for reducing lurking behavior in practice, so as to promote SMCs to develop in a more sustainable way.

Previous studies have explored various factors which lead to SMC lurking, for instance, contextual factors such as their informational (e.g., Osatuyi, 2013; Thompson et al., 2019) and social (e.g., Deng et al., 2017; Mahapatra & Mishra, 2017; Salehan et al., 2016) characteristics, and also users' individual factors (e.g., Correa et al., 2010; Deng et al., 2017; Kim et al., 2015; Lu et al., 2010). However, the large-scale development of SMCs brings up a necessity for identifying the situated-motivational factors involved, and understanding the innate mechanism of lurking. Due to the non-excludability of SMC membership, one netizen can have memberships in multiple SMCs. Netizens have to develop a strategic allocation of their time and effort among those SMCs, which generates distinct gaps between active participation in some groups, and lurking in others. This study argues that the choice of lurking is a strategic deployment based not only on SMC members' personal tendencies, but also on their situated motivation developed from the SMC's context (Turner & Patrick, 2008; Walker et al., 2004). More importantly, extant research usually emphasizes the effect of single factors, and although there are studies investigating how several factors interact with each other (see, e.g., Deng et al., 2017; Mahapatra & Mishra, 2017), the analysis complexity would increase exponentially as the number of factors increases, especially if dealing with correlation-based analysis such as interaction analysis. Thus, investigations into the complicated interplay of the factors leading to lurking are still waiting to be improved.

Based on such considerations, this study aims to examine lurking behavior in SMCs in regard to the interplay of multiple influencing factors. Specifically, this study identifies multiple factors of lurking behavior, including four situated-motivational factors (privacy concern, sustainability concern, shared language, emotive rationality) and two individual factors (introversion-extroversion trait, and social self-efficacy). To deal with the complicity of the interplay between multiple variables, this study applies the configuration analysis method in the form of fuzzy-set qualitative comparison analysis (fsQCA).

Research Background

Information Providers and Receivers

There are two main participants in information-sharing activities: information providers who deliver the information and knowledge to others, and information receivers who mainly consume, process and internalize the obtained information (Zheng et al., 2013). In the SMC context, each user can take the roles of provider and receiver. Active participants are those who take on roles of providers and receivers. However, lurkers are originally seen as the perfect opposite of active participants, as they "linger" on the fringes of the community, watching the membership yet refusing to take either roles of providers or receivers (Nonnecke & Preece, 2001). But since this initial observation, more and more researchers have voiced their suspicions about such a conceptualization. They have argued that lurking can be represented as a zero or low level of information providing (such as not anticipating communication – Schlosser, 2005; or little or no posting during a three-month period – Nonnecke & Preece, 2001; Rafaeli et al., 2004; Ridings, 2006) and simultaneously a relatively high-level of information consuming (such as reading other people's posts – Schlosser, 2005; regular visits – Rafaeli et al., 2004; Ridings, 2006) rather than a symmetrically low-level of information consuming. Similar to conventional virtual communities (Rafaeli

et al., 2004; Ridings, 2006), one can be somewhat eager to consume information from an SMC, while at the same time unmotivated to provide information to it yourself, and such an imbalance in participation activity is defined as lurking (Fernandes & Castro, 2020; Leban et al., 2022). Ahead of the extant phenomenological research on SMC members' lurking behavior (e.g., Fernandes & Castro, 2020; Leban et al., 2022), empirical research on factors leading to this behavior is emerging, as presented in the next section.

Hurdles in Information Sharing in SMCs

Researchers have identified many factors involved in SMC members' lurking. The most-often mentioned factors are the SMC's contextual factors, including their informational characteristics such as information credibility (e.g., Osatuyi, 2013; Thompson et al., 2019) and social characteristics such as being trustworthy (e.g., Deng et al., 2017; Mahapatra & Mishra, 2017; Salehan et al., 2016). This study argues that certain situated-motivational factors which have rarely been identified or investigated, should be adopted as alternatives of SMC contextual factors. The reasons are as follows.

The crucial issue for information sharing in an SMC has shifted from information incredibility and social untrustworthiness, to ecological and sustainability challenges. Noteworthy is that SMC members' decision-making to share information in SMCs has evolved from evaluations based on their perceptions towards an SMC's contextual factors, to strategic choices motivated by the SMC's ecological and sustainable situation. During such strategical selection procedures, situated-motivational factors have been implied in previous research to influence SMC members' information sharing. For instance, information sharing security (e.g., the risk of divulging personal information in the focal SMC) has become SMC members' primary concern that limits their information disclosure (Romero-Hall et al., 2020). As another example, SMCs face situations of an inadequacy of good-quality information in conjunction with an overload of meaningless information and communication collisions (Hur et al., 2017; Thompson et al., 2019) which might influence SMC members' information-sharing decisions. Additionally, SMC members utilize SMCs not only for information transactions, but also for social gratification (Dolan et al., 2016). Therefore, SMC members expect to communicate with their peers fluently and in a friendly manner in the SMC. Such expectations may also influence their intention to share information or to lurk in the SMC. Under such circumstances, situated-motivational factors offer an alternative to the previously identified contextual factors, to become the major constraints for SMC members' information sharing. However, the situated-motivational factors involved in SMC members' information sharing have seldom been identified or discussed in extant research.

As a further point, previous literature also identifies SMC members' individual factors as influencing their information-sharing decisions. These individual factors include personality traits, especially their introversion-extroversion trait (e.g., Amichai-Hamburger & Vinitzky, 2010; Correa et al., 2010; Lu et al., 2010) and their self-efficacy (e.g., Kim et al., 2015). However, there is still an inconsistency in the balancing personality traits of introversion with social enhancement and social compensation hypotheses (Kim, 2018). For a social enhancement hypothesis, researchers point out that more extrovert SMC members tend to participate more actively (Amichai-Hamburger & Vinitzky, 2010; Lu & Hsiao, 2010). Conversely, under a social compensation hypothesis, researchers think introverts are more inclined to utilize the internet to communicate, and thus they share more information (Peter et al., 2005). Moreover, considering SMC members' technology literacy and contextual adaptability have cumulatively increased, social self-efficacy (emphasizing their efficacy in sharing information in a socialized way) offers an alternative to self-efficacy (emphasizing their efficacy in handling technologies when sharing information) to influence SMC members' information-sharing behavior. However, previous literature has seldom considered social self-efficacy as a factor of SMC information-sharing.

Therefore, this study raises the first research question: *What are the possible factors that lead to the lurking behavior that erodes information sharing in SMCs (RQ1)?*

Previous studies have also indicated that the effect of varying factors could be sensitive to the co-effects of other factors. Individual factors (i.e., personality traits, self-efficacy) are often treated as moderators of SMC's contextual factors such as information credibility and trustworthiness (see, e.g., Deng et al., 2017; Mahapatra & Mishra, 2017; Salehan et al., 2016). This study argues that individual factors might also interact with SMC members' situated-motivational factors in deciding SMC members' information sharing, especially their lurking behavior. However, extant research has rarely discussed the interactions

between individual factors and situated-motivational factors. Furthermore, different individual factors could interact with each other, as well as with different situated-motivational factors, which altogether makes for a highly complex causality of lurking behavior, and SMC members with different levels of introversion or social self-efficacy would likely develop different expectations and motivations towards the SMC. Thus it is necessary to examine the interplay of different factors that affect SMC members' lurking behavior.

Therefore, the second question is raised: *How do the mentioned six factors (privacy concern, sustainability concern, shared language, rationality, introversion and social self-efficacy) interplay to formulate lurking behavior in SMCs (RQ2)?*

Considering that methods based on correlation and interaction analysis have certain limitations in dealing with the interplay of multiple factors, this study employs fsQCA to investigate the complex causality between lurking behavior and its influencing factors.

Research Model

This current study proposes a research model (Figure 1) by referring to Expectancy Theory (Vroom, 1964) and its extension in the social context (Lloyd & Mertens, 2018) combining Situated Motivation Theory (Walker et al., 2004, Turner & Patrick, 2008) to bridge multiple factors (and their interplay), and investigate lurking behavior. In the social context, Expectancy Theory is a motivation theory that emphasizes that individuals' expectations of their behavioral consequences and their social self-efficacy lead to their actual behaviors (Lloyd & Mertens, 2018). According to Situated Motivation Theory, individuals develop different motivations in different contexts, ahead of their permanent tendencies (Walker et al., 2004, Turner & Patrick, 2008). Thus in the SMC context, situated motivational factors and individual factors (i.e., social self-efficacy and personality traits) mutually influence SMC members' lurking behavior.

Regarding situated-motivational factors, we identified four situated motivations categorized by two dimensions: information vs. socialization, and affordance vs. norm. The information vs. socialization orientation refers to either the situated motivation being an expectation about information posting, acquiring and delivering in the SMC (information), or about social contacts and acquaintances with other SMC members (socialization). The affordance vs. norm orientation means the situated motivation is an expectation that the SMC enables SMC members to do something (affordance), or constrains them from doing something (norm). Accordingly, the four situated motivations are expectations towards the community's *informative affordance* – privacy concern, expectation towards the community's *social affordance* – shared language, expectation towards the community's *informative norms* – sustainability concern, and expectation towards the community's *social norms* – social rationality.

Variable	Definition
Lurking	The imbalance in participation activeness, represented as a low level of information providing with a relatively high level of information consuming (Rafaeli et al., 2004; Ridings, 2006)
Privacy concern	The fear of having personal information leaked (Nepomuceno, 2014)
Sustainability concern	The fear of possible damage to the sustainability of the community by the information-sharing behavior (Pham, 2007)
Shared language	The feeling that the community has acronyms, subtleties, and underlying assumptions that are the staples of interactions among community members (Tamjidyamcholo, 2013)
Rationality	The state that behaviors are emotional, defensive, have a logical sense, and are consistent with societal goals, moral standards, or evolutionary purposes (Pham, 2007)
Introversion	The personality trait characterized by a preference for the inner life of the mind over the outer world of other people; People who are introverted tend to be more reserved, having less energy to expend in social settings (Power & Pluess, 2015)
Social self-efficacy	The belief that one is capable of doing something under certain social circumstances (Bandura, 1997)

Table 1. Definitions of Variables in the Current Study

As for individual factors, we include social self-efficacy into the model, to emphasize SMC members' specific self-efficacies towards socialization activities. We also include introversion in the model, as it is a major personality trait influencing informative and social behaviors in SMCs. Table 1 summarizes the definitions of lurking and the proposed multiple factors leading to lurking.

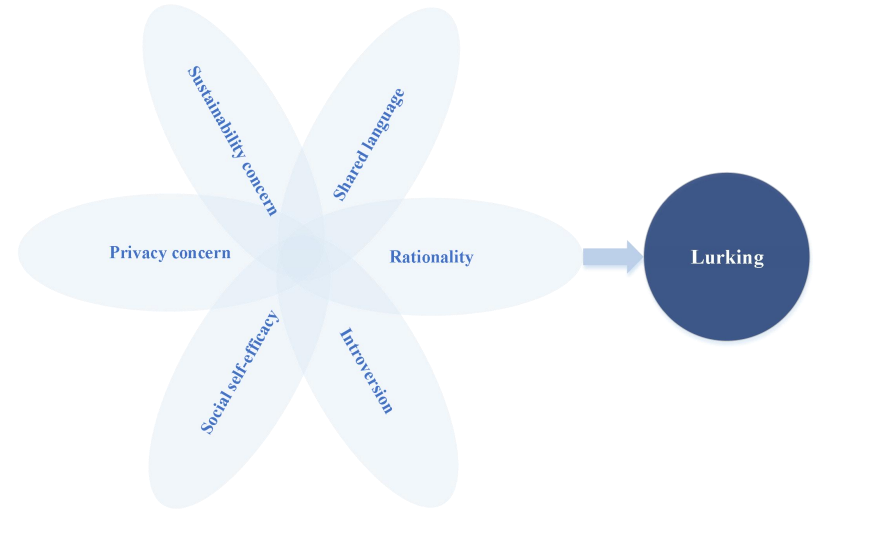

Figure 1. Conceptual Model

The conceptual model is shown in Figure 1. Different from methods based on correlation (such as linear regression and structural equation), fsQCA as a method based on configuration theory, and posits that different configurations of the same bunch of factors could lead to different outcomes (Fiss, 2011; Ragin, 2008). Therefore, fsQCA emphasizes the factors' interplay generating the outcome, rather than any single factor (Fiss, 2011; Ragin, 2008). In Figure 1, the six factors and their interplay are shown on the left side, and the outcomes of lurking behavior on the right side. The conceptual model can also be expressed as the following equation:

$$LUK = f (PC, SC, SL, RA, IN, SSE)$$

Methodology

Research Design

The fsQCA method relies on Boolean algebra to implement logical principles of comparison among multiple cases (Fiss, 2011; Ragin, 2008), and has been applied to work out strategy configurations in many domains, including information-sharing behavior (see, e.g., Mikalef & Pateli, 2017; Ordanini et al., 2014). In the current study, individual-level data of SMC lurking behavior and multiple factors were collected through an online survey of 470 participants. We calibrated the data to the fuzzy memberships, and then solved meaningful configurations in relation to the lurking behavior.

Samples

The survey was conducted online on a Chinese questionnaire platform named Sojump (http://www.sojump.com) in April 2020. In total, 647 completed responses were obtained, and 470 were valid responses (dismissing 31 responses that were answered within 2 minutes and 146 responses that submitted the wrong answer to the filler question). A coupon worth three RMB yuan was offered to respondents with valid answers. 51.3% of the respondents were male, while 48.7% were female. 36.0% were between the ages of 10-24 years old; 21.1% were aged between 25-29; 20.2% were aged between

30-34. 53.0% of them had a Bachelor's degree. 39.1% were students, while 24.6% were employed for wages. 79% had an income of less than 6000 RMB per month (after tax).

Questionnaire and Measurements

The questionnaire used in the survey had three parts. The first part was a cover letter containing a consent form. Explanations of SMC and a few examples of SMCs were also included. Participants were asked to recall an SMC that they were a member of. The second part included scales for latent outcome variables of lurking behavior, developed by Ridings et al. (2006), and also six latent conditional variables (privacy concern, adapted from Wolfinbarger & Gilly, 2003; sustainability concern, self-developed; shared language, adapted from Tamjidyamcholo, 2013; rationality, adapted from Swan et al., 1991; introversion, adapted from Van der Zee et al., 2013; and social self-efficacy, adapted from Sherer & Maddux, 1982). The third part collected respondents' demographic information. All items were measured with a seven-point Likert scale, ranging from strongly disagree (1) to strongly agree (7).

Procedure

Reliability and validity check for measurement

First, tests were conducted on reliability and validity at the questionnaire level and the measurement level. The questionnaire-level tests include a response bias test and a common-method bias test. To test non-response bias, we conducted T-tests using SPSS 26.0 for each item between two groups, including the first 50 and last 50 cases. The common method bias was judged according to Harman's single-factor test (Podsakoff et al., 2003) by exploratory factor analysis in SPSS 26.0. The measurement level tests included the measurement model test, and each measurement's reliability and validity.

Fuzzy-set qualitative comparison analysis

This study applied fsQCA to the data using fsQCA 3.0 software (Ragin, 2008). The analysis includes five steps: calibration, the establishment of the truth table, editing the truth table, the refinement of the truth table, and the interpretation of the solution.

Calibration: In the current study, we calibrated the data of these variables by using the upper quartile value as the full membership (which scored 0.95), the lower quartile value as the full non-membership (which scored 0.05), and the median value as the crossover point (which scored 0.50) (refer to Table 2 for the upper/lower quartile values and median values of these variables, and other statistics).

Establishment of truth tables: Then, a truth table was constructed listing all of the logically possible combinations of the conditions represented in binary states (i.e., presence or absence), based on the transformed fuzzy-set membership scores of all of the variables (Ragin, 2008).

Editing the truth table: The truth table should then be edited by designating the frequency cutoff and consistency threshold. This study set the frequency cutoff at three and the consistency threshold as 0.88 for configuration analysis of high/low levels of information consuming/consuming intention, and set the frequency cutoff at four and consistency threshold as 0.80 for lurking behavior.

Refinement of the truth table: Next, the Quine-McCluskey algorithm based on counterfactual analysis was employed to the refined truth table (Fiss, 2011; Ragin, 2008). The effects of conditions on the outcomes were set as "present or absent." The algorithm achieved three kinds of solutions (complex solution, parsimonious solution, and intermediate solution) (Fiss, 2011; Ragin, 2008).

Interpretation of the solution: The core and peripheral factors could be distinguished by comparing the complex and parsimonious solutions under the previous set (Fiss, 2011; Ragin, 2008).

Variable	Mean	Standard deviation	Kurtosis	Skewness	Upper quartile	Median	Lower quartile
Lurking (LUK)	3.74	1.14	0.32	0.28	4.25	3.75	3.00
Information consuming intention (ICI)	5.84	0.83	1.62	−1.04	6.33	6.00	5.33

Information providing intention (IPI)	5.60	0.94	0.83	−0.79	6.25	5.75	5.00
Privacy concern (PC)	5.23	1.07	−0.19	−0.45	6.00	5.33	4.33
Sustainability concern (SC)	5.49	0.81	0.23	−0.30	6.00	5.5	5.00
Shared language (SL)	5.34	0.86	0.00	−0.29	6.00	5.33	4.67
Rationality (RA)	5.20	0.65	−0.10	0.03	5.67	5.17	4.75
Introversion (IN)	3.53	1.38	−0.62	0.21	4.5	3.5	2.5
Social self-efficacy (SSE)	4.62	0.89	0.29	0.29	5.33	4.67	4.00

Table 2. Descriptive Statistics and Anchors of Calibration

Sensitivity analyses

Sensitivity analysis was then conducted to examine the robustness of the results by using alternative condition specifications, i.e., alternative calibrations of the variables by other plausible anchor systems (Fiss, 2011). To conduct the sensitivity analysis, the anchors of the upper quartile-median-lower quartile values were used to calibrate the variables before they were varied by +/− 15 percent in the new calibration procedure.

Results

Pretest of Reliability and Validity

The result of the non-response bias test showed no significant difference between the two groups (as all p values > 0.05), indicating that non-response bias is not a serious concern. The result of the common method bias showed the first factor merely accounted for 21.807% of the variance, indicating common method bias is not a serious concern. The measurement model with ten latent variables was developed with Mplus 7.0, and fitted well with Chi-Square (986.896)/ df (356) = 2.772, CFI = 0.838, TLI = 0.815, SRMR = 0.061, and RMSEA = 0.061, with all indexes at acceptable cutoff ranges. The values of composite reliability and Cronbach's α for each construct were greater than 0.6. The majority of items' estimated loadings exceeded the recommended 0.5 cutoffs and are significant at the 0.001 level, supporting the convergent validity of all measurements (refer to Table 3). Thus, the measurement model demonstrated adequate reliability and validity.

Construct	**Item**	**Mean**	***S.D.***	**Loading**	***C.R.***	**α**
Lurking behavior	How much time do you spend reading messages in this SMC? Very little —very much	4.73	1.28	0.649	0.828	0.827
	How much time do you spend composing messages? Very little —very much (R)	3.94	1.44	0.795		
	How frequently do you post as a new thread in this SMC? Very frequently —very infrequently	3.98	1.47	0.771		
	How frequently do you post a response to other members' messages in this SMC? Very frequently —very infrequently	3.75	1.44	0.735		
Privacy concern	I feel my personal privacy is protected in this SMC.	5.14	1.28	0.812	0.793	0.785
	I feel safe in my transactions in this SMC.	5.41	1.16	0.637		
	This SMC has adequate security features.	5.16	1.36	0.790		
Sustainability concern	I want this SMC to have a good ecology.	6.32	0.82	0.479	0.436	0.618
	If there are too many posts and replies in this SMC, community members cannot get the information they really want.(D)	5.09	1.47	0.243		
	If there are too many posts and replies in this SMC, it will affect the efficiency of the community members in getting information.(D)	5.23	1.40	0.251		

	Community members are responsible for maintaining the appropriate quantities of posts and responses in this SMC.	5.29	1.29	0.577		
Shared language	Security terms and jargon used in this SMC are understandable.	5.53	1.12	0.499	0.589	0.677
	Shared acronyms and language facilitate understanding in this SMC.	5.02	1.32	0.575		
	In this SMC, we use common vocabulary to understand each other easily.	5.48	1.05	0.630		
Rationality	I try to do what is sensible and logical in this SMC.	5.96	0.89	0.550	0.806	0.774
	I try to understand people and their behavior in this SMC.	5.49	1.04	0.587		
	I try to behave reasonably in my relations with others in this SMC.	5.69	0.97	0.600		
	I use intelligence and reason to overcome conflicts or disagreements with other people in this SMC.	5.60	1.05	0.641		
	When I am in a situation in which I strongly disagree with other people, I try not to show my emotions in this SMC.	5.03	1.25	0.377		
	If someone deeply hurts my feelings, I still try to treat them reasonably and understand their behavior in this SMC.	4.38	1.54	0.477		
	I try to understand other people even if I do not like them in this SMC.	4.76	1.37	0.500		
	I succeed in avoiding arguments with others by using reason and logic (often contrary to my feelings) in this SMC.	5.68	1.11	0.555		
	If someone acts against my needs and desires, I still try to understand them in this SMC.	4.40	1.50	0.448		
	My behavior in most situations is logical and reasonable, not influenced by my emotions in this SMC.	5.61	1.07	0.518		
	If someone deeply hurts my feelings, I may attack them or respond purely emotionally in this SMC. (R)(D)	4.17	1.48	0.094		
	My use of reason and logic prevents me from attacking others, even if there are good reasons for doing so in this SMC.	5.65	1.11	0.496		
Social self-efficacy	It is difficult for me to make new friends in this SMC.	4.86	1.55	0.684	0.663	0.662
	If I see someone I would like to meet, I go to that person instead of waiting for them to come to me in this SMC. (R)	5.02	1.40	0.425		
	If I meet someone interesting who is hard to make friends with, I'll soon stop trying to make friends with that person in this SMC. (D)	3.95	1.53	0.359		
	When I'm trying to become friends with someone who seems uninterested at first, I don't give up easily in this SMC. (R)(D)	4.37	1.48	0.333		
	I do not handle myself well in social gatherings in this SMC.	4.28	1.49	0.693		
	I have acquired my friends through my personal abilities to make friends in this SMC. (R)	5.25	1.28	0.478		
Introversion	I see myself as someone who is reserved in this SMC.	3.62	1.64	0.678	0.668	0.666
	I see myself as someone outgoing and sociable in this SMC. (R)	3.44	1.55	0.737		

Table 3. Composite Reliability, Cronbach's α, Factor Items and Loadings

Notes: S.D. = Standard deviation; C.R.= Composite reliability. R = reversed item; D means this item was deleted due to poor loading.

Configuration Results

The solutions of the configuration analysis are listed in Table 4 and further illustrated in Table 5. Generally, there are four paths for lurking behavior. Specifically, lurking behavior happens when low levels of shared language and rationality meet with high levels of introversion and social self-efficacy (all

as core conditions, as shown in Configuration 1), or low levels of privacy concern, sustainability concern, shared language meet with high levels of introversion and social self-efficacy (all as core conditions, as shown in Configuration 2). Configurations 3 and 4 both have a low level of privacy concern as a peripheral condition. Configuration 3 has core conditions as low levels of shared language and rationality meet with high levels of sustainability concern and introversion, and Configuration 4 has core conditions as the low levels of shared language and introversion meet with high levels of sustainability concern and social self-efficacy.

Outcomes	**Parsimonious (intermediate) solutions**	**Complex solutions**
Lurking behavior	1. ~SL*~RA*IN*~SSE 2. ~PC*~SC*~SL*IN*~SSE 3. SC*~SL*~RA*IN 4. SC*~SL*~IN*~SSE	1. ~SL*~RA*IN*~SSE 2. ~PC*~SC*~SL*IN*~SSE 3. ~PC*SC*~SL*~RA*FIN 4. ~PC*SC*~SL*~IN*~SSE

Table 4. Configuration Analysis Results

*Notes: * means Boolean logic "and;" ~ means Boolean logic "not."*

Dependents	**Lurking behavior**			
Solutions	1	2	3	4
Privacy concern		⊙	⊙	⊙
Sustainability concern		⊙	●	●
Shared language	⊙	⊙	⊙	⊙
Rationality	⊙		⊙	
Introversion	●	●	●	⊙
Social self-efficacy	⊙	⊙		⊙
Raw coverage	0.286	0.192	0.133	0.089
Unique coverage	0.063	0.023	0.014	0.035
Consistency	0.829	0.832	0.870	0.828
Solution coverage	0.361			
Solution consistency	0.822			

Table 5. Configurations for Various Information-Sharing Behavior

Notes:●indicates the presence of a condition, and ⊙ indicates its absence (where there is none). Large circles indicate core conditions; small circles, peripheral conditions. Blank spaces indicate "don't care."

Sensitivity Analysis

Sensitivity analysis results indicated that despite minor changes to the neutral permutations that occurred and the specific number of solutions and sub-solutions, the interpretation of the results remained substantively unchanged.

Discussions

Key Findings

Finding 1. *The proposed six factors all influenced lurking behavior in SMCs*. The proposed six factors, including privacy concern, sustainability concern, shared language, rationality, introversion, and social self-efficacy, all have some effect on SMC members' lurking behavior as they all appear in at least one configural path. The low level of shared language appears in each of the four configural paths, indicating shared language always functions negatively on lurking behavior. However, except for shared language, the effect of each of the other five factors on lurking behavior is neither merely positive nor merely negative: it depends on in which configural path the factor exists. Regarding the core or peripheral role of each factor, it also depends on the configural path. We further explain this in the following discussions.

Finding 2. *The proposed six factors had a diverse interplay when formulating the lurking behavior in SMCs*. There are four different configural paths leading to the mutual outcome of lurking behavior. Moreover, different factors function differently in each configural path depending on the interplay of the other factors. For example, the role of sustainability concern is interesting, and has different effects in different configurations. Specifically, the low level of sustainability concern is a core factor of lurking behavior in Configuration 2, while the high level of sustainability concern becomes a core factor of lurking behavior in Configurations 3 and 4.

Finding 3. *The combination of individual factors led to different configural paths.* For instance, most lurking behaviors happen to introvert netizens with low social self-efficacy. However, extrovert netizens with low social self-efficacy also lurk in SMCs when their sustainability concern is high. That is to say, low social self-efficacy is an important reason for lurking behavior. Findings on individual factors partly align with previous research implying that lurkers are netizens with low social self-efficacy (Kim et al., 2015). Findings also shed light on the previous disputes on introversion's effect on information sharing. Although the majority of research supports the social enhancement hypothesis in SMCs, this current study points out that extroverts may also sometimes lurk.

Finding 4. *Across all four paths, except for privacy concern, other five factors function as core conditions leading to lurking behavior*. For privacy concern, it appears as a core condition in Configurations 1&2, but a peripheral condition in Configurations 3&4. That means, in Configurations 3&4, privacy concern has to assist other core conditions to influence the lurking behavior.

Research Contribution

Generally, this study offers a granular understanding of information sharing, and especially the lurking behavior in SMCs, illustrating how SMC members develop strategic behaviors of information sharing based on their motivations. This study argues that the advance of SMCs and the accumulation of netizens' literacy have made the choice of lurking a strategic deployment between multiple SMCs in which netizens have memberships. Their decision-making could be explained by the situated motivations they develop in the SMC (e.g., either they expect information or social acquaintance, or their expectations orient to the SMC's affordances or norm), aside from the previously emphasized evaluations based on the SMC's contextual features such as their information credibility or social trustworthiness. The focus on SMC members' situated motivation of strategic information-sharing implies a valuable perspective when investigating multiple information-sharing behaviors (both information-consuming and information providing behaviors) in SMCs.

Under the above perspective of strategy and motivation, this study identifies prominent situated-motivational factors influencing SMC members' lurking behavior. Being identified through two motivational dimensions (informative vs. social orientation; and affordance vs. norm), these situated-motivational factors include privacy concern (informative-oriented motivation based on the SMC's affordance), shared language (informative-oriented motivation based on the SMC's norm), sustainability concern (social-oriented motivation based on the SMC's affordance), and rationality (social-oriented motivation based on the SMC's norm). Identifying these factors encourages further in-depth investigations into the situated motivational factors of multiple information-sharing behaviors (both information-consuming and information providing behaviors) in SMCs.

This study also includes individual factors such as introversion and social self-efficacy in the integrated framework of lurking. Instead of emphasizing a single factor's influence on SMC members' lurking behavior, this study highlights the interplay between situated-motivational factors and individual factors, as well as within each aspect of factors. The results show different combinations of situated-motivational factors leading to the lurking behavior for SMC members with different introversion and social self-efficacy levels, which functions as a valuable reflection of the previously disputed results of the effects of some factors (e.g., introversion). The results also show that a single factor's influence on the lurking behavior depends on the co-existence of other factors, which creates multiple paths leading to lurking. Such a configural perspective might encourage future research to attune to the complex causality lying behind lurking behavior (with each factor playing different roles in different paths), surpassing the previous focus of a simple causality emphasizing factors' overall effects on lurking behavior.

Practical Implications

This current study implies a necessity for reflecting on SMC members' information-sharing strategic behaviors (i.e., lurking), based on their situated motivation and individual traits. It implies that the previous dominating emphasis on SMCs' contextual factors (e.g., information credibility or social trustworthiness) might lead to further understandings that echo SMC members' situated motivations. This present study thus brings up several insightful situated-motivational factors (privacy concern, sustainability concern, shared language, rationality) that SMC practitioners could focus on when managing information sharing in SMCs. For instance, shared language could be established by explicating the originally implicit community consensus or helping the 'newbies' accumulate community knowledge and become socialized quickly through tutorials and communication with senior members. Also implied is that an awareness of information sustainability could be manipulated by the senior members' advocates or by the explicit community consensus.

The four configural paths discovered in this study provide a synthesis of SMC lurking behavior and their factors, which further provides SMC practitioners with opportunities to conduct specialized information management operations in SMCs. Specifically, the introduction of individual factors (i.e., introversion and social self-efficacy) in the research framework offers a configural view that SMC members with different introversion and social self-efficacy levels have different paths leading to lurking. Therefore, SMC managers could develop profiled typologies of SMC members based on their introversion and social self-efficacy levels, and then develop a specialized deployment of their resources oriented to SMC members' motivations. For instance, as Configuration 1 shows, introverted SMC members with low social self-efficacy could lurk if they feel irrationality and less shared language in the SMC, while Configuration 4 shows extroverted SMC members with low social self-efficacy could also lurk when they feel less shared language but also a significant sustainability concern. Thus, instead of working on a single motivation, they should avoid the corresponding combination of situated-motivational factors for a certain profiled typology.

Conclusion, Limitations, and Future Research

This study utilizes fsQCA on survey data from 470 Chinese SMC members and identifies the configurations (presented as four paths combined of different levels of privacy concern, shared language, sustainability concern, rationality, and social self-efficacy) leading to their lurking behavior. In doing so, this study adds to the understandings on why lurking behaviors happen, and how to promote SMCs' information-sharing sustainability from the perspective of SMC members' situated motivations.

This study still has some limitations, which we feel that future research can work on. First, this study does not identify all of the significant factors (e.g., SMC members' characteristics of gender, age, their SMC experience, technology literacy, and their trust towards SMCs) relating to information sharing. Therefore, future research can integrate these factors into the model to develop a more holistic SMC information-sharing framework. Second, this study only investigates the configurations for a high level of lurking behavior, leaving the configurations for the low level lurking behavior to be further identified, and so enabling an insightful comparison between the high and low levels of lurking behavior to be conducted.

Acknowledgements

This study was funded by Youth Foundation for Humanities and Social Sciences Research of the Ministry of Education, China under Grant No. 22YJC630007; Research Project of Anhui University of Finance and Economics under Grant No. ACKYB22018; KAUTE Foundation under Grant No. 20200531 (VIRTUMER); the Foundation for Economic Education under Grant No. 210301 (GAMETH); the Academy of Finland Flagship Programme under Grant No. 337653 (UNITE).

References

Chiang, I. P., Wong, R., & Huang, C. H. (2019). Exploring the benefits of social media marketing for brands and communities. *International Journal of Electronic Commerce Studies, 10*(2), 113-140.

Chung, N., Nam, K., & Koo, C. (2016). Examining information sharing in social networking communities: Applying theories of social capital and attachment. *Telematics and Informatics, 33*(1), 77-91.
Chung, W., & Zeng, D. (2020). Dissecting emotion and user influence in social media communities: An interaction modeling approach. *Information & Management, 57*(1), Article 103108.
Correa, T., Hinsley, A. W., & de Zúñiga, H. G. (2010). Who interacts on the Web?: the intersection of users' personality and social media use. *Computers in Human Behavior, 26*(2), 247–253.
Deng, S., Lin, Y., Liu, Y., Chen, X., & Li, H. (2017). How Do Personality Traits Shape Information-Sharing Behaviour in Social Media? Exploring the Mediating Effect of Generalized Trust. *Information Research: An International Electronic Journal, 22*(3), 1-37.
Dolan, R., Conduit, J., Fahy, J., & Goodman, S. (2016). Social media engagement behaviour: A uses and gratifications perspective. *Journal of strategic marketing, 24*(3-4), 261-277.
Fernandes, T., & Castro, A. (2020). Understanding drivers and outcomes of lurking vs. posting engagement behaviours in social media-based brand communities. *Journal of Marketing Management, 36*(7-8), 660-681.
Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal, 54*(2), 393-420.
Hur, K., Kim, T. T., Karatepe, O. M., & Lee, G. (2017). An exploration of the factors influencing social media continuance usage and information sharing intentions among Korean travellers. *Tourism Management, 63*, 170-178.
Kim, J., Lee, C., & Elias, T. (2015). Factors affecting information sharing in social networking sites amongst university students: Application of the knowledge-sharing model to social networking sites. *Online information review, 39*(3), 290-309.
Kim, J. Y. (2018). A study of social media users' perceptional typologies and relationships to self-identity and personality. *Internet Research, 28*(3), 767-784.
Leban, M., Seo, Y., & Voyer, B. G. (2020). Transformational effects of social media lurking practices on luxury consumption. *Journal of Business Research, 116*, 514-521.
Liou, D. K., Chih, W. H., Hsu, L. C., & Huang, C. Y. (2016). Investigating information sharing behavior: the mediating roles of the desire to share information in virtual communities. *Information Systems and e-Business Management, 14*(2), 187-216.
Lloyd, R., & Mertens, D. (2018). Expecting more out of expectancy theory: History urges inclusion of the social context. *International Management Review, 14*(1), 28-43.
Lu, H. P., & Hsiao, K. L. (2010). The influence of extro/introversion on the intention to pay for social networking sites. Information & Management, 47(3), 150-157.
Mahapatra, S., & Mishra, A. (2017). Acceptance and forwarding of electronic word of mouth. *Marketing Intelligence & Planning, 35*(5), 594-610.
Mikalef, P., & Pateli, A. (2017). Information technology-enabled dynamic capabilities and their indirect effect on competitive performance: Findings from PLS-SEM and fsQCA. *Journal of Business Research, 70*(C), 1-16.
Mirzaei, T., & Esmaeilzadeh, P. (2021). Engagement in online health communities: Channel expansion and social exchanges. *Information & Management, 58*(1), Article 103404.
Ordanini, A., Parasuraman, A., & Rubera, G. (2014). When the recipe is more important than the ingredients: A qualitative comparative analysis (QCA) of service innovation configurations. *Journal of Service Research, 17*(2), 134-149.
Osatuyi, B. (2013). Information sharing on social media sites. *Computers in Human Behavior, 29*(6), 2622-2631.
Pasternak, O., Veloutsou, C., & Morgan-Thomas, A. (2017). Self-presentation, privacy and electronic word-of-mouth in social media. *Journal of Product & Brand Management, 26*(4), 415-428.
Peter, J., Valkenburg, P. M., & Schouten, A. P. (2005). Developing a model of adolescent friendship formation on the Internet. *CyberPsychology, Behavior, and Social Networking, 8*(5), 423-430.
Pham, M. T. (2007). Emotion and rationality: A critical review and interpretation of empirical evidence. *Review of General Psychology, 11*(2), 155-178.
Power, R. A., & Pluess, M. (2015). Heritability estimates of the Big Five personality traits based on common genetic variants. *Translational Psychiatry, 5*(7), e604-e604.
Rafaeli, S., Ravid, G., & Soroka, V. (2004, January). De-lurking in virtual communities: A social communication network approach to measuring the effects of social and cultural capital. In 37th Annual Hawaii International Conference on System Sciences, 2004. Proceedings of the (pp. 10-pp). IEEE.

Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. Chicago: University of Chicago Press.

Ridings, C., Gefen, D., & Arinze, B. (2006). Psychological barriers: Lurker and poster motivation and behavior in online communities. *Communications of the association for Information Systems, 18*(1), 329-354.

Romero-Hall, E., Petersen, E., Sindicic, R., & Li, L. (2020). Most versus least used social media: undergraduate students' preferences, participation, lurking, and motivational factors. *International Journal of Social Media and Interactive Learning Environments, 6*(3), 244-266.

Salehan, M., Kim, D. J., & Koo, C. (2018). A study of the effect of social trust, trust in social networking services, and sharing attitude, on two dimensions of personal information sharing behavior. *The Journal of Supercomputing, 74*(8), 3596-3619.

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51*(2), 663-671.

Spielberger, C. D. (1988). *The Rationality/Emotional Defensiveness (R/ED) Scale: Preliminary Test Manual*. Tampa, Fl: University of South Florida.

Swan, G. E., Carmelli, D., Dame, A., Rosenman, R. H., & Spielberger, C. D. (1991). The rationality/emotional defensiveness scale—I. Internal structure and stability. *Journal of Psychosomatic Research, 35*(4-5), 545-554.

Su, L. Y. F., Scheufele, D. A., Bell, L., Brossard, D., & Xenos, M. A. (2017). Information-sharing and community-building: Exploring the use of Twitter in science public relations. *Science Communication, 39*(5), 569-597.

Tamjidyamcholo, A., Baba, M. S. B., Tamjid, H., & Gholipour, R. (2013). Information security–Professional perceptions of knowledge-sharing intention under self-efficacy, trust, reciprocity, and shared-language. *Computers & Education, 68*(1), 223-232.

Thompson, N., Wang, X., & Daya, P. (2019). Determinants of news sharing behavior on social media. *Journal of Computer Information Systems, 60*(6), 593-601.

Turner, J. C., & Patrick, H. (2008). How does motivation develop and why does it change? Reframing motivation research. *Educational Psychologist, 43*(3), 119-131.

Van der Zee, K., Van Oudenhoven, J. P., Ponterotto, J. G., & Fietzer, A. W. (2013). Multicultural Personality Questionnaire: Development of a short form. *Journal of Personality Assessment, 95*(1), 118-124.

Vroom, V. H. (1964). *Work and Motivation*. John Wiley and Sons: New York, NY, USA.

Walker, R. A., Pressick-Kilborn, K., Arnold, L. S., & Sainsbury, E. J. (2004). Investigating motivation in context: Developing sociocultural perspectives. *European Psychologist, 9*(4), 245-256.

Wolfinbarger, M., & Gilly, M. C. (2003). eTailQ: dimensionalizing, measuring and predicting etail quality. *Journal of retailing, 79*(3), 183-198.

Xiang, Z., & Gretzel, U. (2010). Role of social media in online travel information search. *Tourism Management, 31*(2), 179-188.

Zheng, Y., Zhao, K., & Stylianou, A. (2013). The impacts of information quality and system quality on users' continuance intention in information-exchange virtual communities: An empirical investigation. Decision Support Systems, 56(C), 513-524.