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ORIGINAL ARTICLE

Investigating information sharing behavior: the mediating roles of the desire to share information in virtual communities

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Abstract Social networking sites are built and designed to provide online services and a platform for people to social interacts and exchange information. This study used the social capital theory as a foundation to explore the social interaction factors and individual factors such as shared value, community identification, and information privacy concerns, and examine the mediating role of the desire to give information between trust on websites/members and information sharing behaviour in the proposed model. This research sample consists of seven hundred and twenty-seven members who have used the Facebook fan page for at least 6 months. This study adopted structural equation modeling to test the research hypotheses. The results of this study show that shared value, community identification, and information privacy concern directly influence trust on websites and members. Trust on websites and members directly influenced the desire to get/give information. Desire to give information directly influences information sharing behaviour. The desire to give information plays important mediating roles between trust on websites/members and information sharing behaviour. Finally, we provide conclusions and managerial implications of the findings.

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1 Introduction

Due to the wave of worldwide 'socialnomics', social media marketing has becomes the hottest topic in recent years. The eMarketer survey (2014) indicated that approximately 1.6 billion and 10 million users' login Website community at least once per month in 2014, equivalent to 1/5 of the global population, increasing by 14.2 % compared to 2012. The SNSs users continue to grow and the number of users will reach 2.3 billion and 30 million before the end of 2017. Therefore, this trend of socialnomics not only affects the consumers' future lifestyle but has also changed the business models and marketing channels of many industries; this has created a variety of innovative services and a new revolution of channels (The Institute for Innovative Applications and Services Institute 2012).

Virtual community is an online social network, constructed on the basis of social interactions for people with common interests, goals, share information and knowledge. The essence of virtual community bases on the social interaction and embeds the networking resources to maintain the operations of the virtual community (Chiu et al. 2006). Compared with traditional web pages that transmit information unilaterally, social network platforms provide users with an interactive channel. Facebook, one of social media sites offers people a medium to maintain and consolidate social connections and presents numerous functions for users to communicate with each other. Thus, users can enhance their knowledge and communication skills through sharing photographs, links, news, and messages with their friends on Facebook and provide direct feedback by either pressing like or writing a comment on their friend's posts (Bicen and Cavus 2011; Jiang et al. 2011). SNSs utilizes the motivations of interaction with other people, emotional attachment and information needs and provides a virtual space for users' interest in the same topic to group together and share information.

This study applied the relevant factors of social capital theory to explore the relationships among factors affecting information sharing behavior for virtual community members. This research tried to answer three research gaps. First, in the social interaction factors, most scholars focused on social capital and knowledge sharing or information sharing in the past (Nahapiet and Ghoshal 1998; Wasko and Faraj 2005). In the e-commerce studies, the importance of interpersonal relationships is the key issue in virtual community. Virtual community just likes a small society possessing the circulation of behavior and resource of an actual organization or community with shared value (shared vision, shared language), identification, trust, and so on. Knowledge sharing has been the benefit to both individuals and groups through the centuries (Reid 2003). However, it is unknown about the causes of facilitators of information sharing behavior of community members (Szulanski 1996; Wiig 1997). Although some scholars (e.g., Chiu et al. 2006; Sun et al. 2009)

applied the impact of social capital factors, this study integrated social capital factors (e.g., shared value, identification, and trust) to explore the relationships among constructs to recover this research gap in this area.

Second, privacy and security are important elements in the Internet context (Eriksson et al. 2005; Mukherjee and Nath 2003). Gartner (2011) found that 33 % of users no longer having a soft spot for social media due to the issues of Internet privacy. How to protect users' privacy is the key objective for designing SNSs, because privacy within SNSs is not undesired and undefined (Dwyer 2007). It is quite common to have these phenomena, such as, disclosure the personal information including messages people post, photos people upload, and privacy. Although SNSs provide a new opportunity for communication and real-time exchange of all kinds of information, privacy and security are regarded as the significant issues in the SNSs (Donath 2007). Therefore, this study also included the individual factor of privacy concerns in the model.

Third, previous scholars only focused on the effects of knowledge or information sharing behavior on knowledge contribution, knowledge quality and knowledge quantity when they studied the knowledge and information sharing with social capital (Chiu et al. 2006; Wasko and Faraj 2005). There is no way of knowing the existence of the effect of the intention on social community members' behaviors. Previous scholars have acknowledged that knowledge acquiring intentions and knowledge providing intentions are equally vital (Kang and Shin 2008). However, studies exploring the relationship between behavioural intention and actual behaviours have typically adopted traditional theories, such as theory of reasoned action (TRA) and the technology acceptance model (TAM), to evaluate actual behaviours based on a single dimension of intention (Bock et al. 2005; Chen IYL and Chen NS 2009; Kuo and Young 2008; Tsai and Cheng 2010). Therefore, this study included the desire to get/give information for the intention factor to predict the antecedents of knowledge share behavior of community members.

In summary, this study integrated the perspectives of social interaction and individual factor to explore the relationships among social interaction factors (including shared value, identification and trust), individual factor, and information privacy concern in the virtual community. The purposes of this research were to explore the relationships among shared value, community identification, information privacy concern, and trust on website and on members, desire to get/give information, and information sharing behavior. Finally, this study investigated the mediating effect of the desire to get/give information between trust and information sharing behavior.

The structure of this study is as follows. In the next section, this study will establish the information sharing behavior of the virtual community members as the theoretical basis and develop a conceptual model and research hypotheses with relevant literature. Then, this study will describe the research methodology and an empirical study. Finally, this study provides the suggestions for future research—and practical significance of the discussions and recommendations.

2 Literature review and hypotheses

This study integrated three social interaction factors (shared value, community identification and trust) with the extension to the individual factor (information privacy concern) based on the social capital theory to understand the antecedents of information sharing behavior of community members (see Fig. 1). The following literature topics include: social capital theory; social interaction factors (shared value, community identification, trust); the relationships between constructs (shared value and trust, community identification and trust, privacy concern and trust, trust and desire to get/give information, trust and information sharing behaviour, desire to get/give information and information sharing behaviour); individual factor (privacy concern); desire to get and give information, and information sharing behaviour.

2.1 Social capital theory

This study attempted to explore the relationships among relevant variables based on the social capital theory and three social influence processes (internalization, compliance and identification) as pointed out by Kelman (1974). These three levels of the social influence processes affect individual behavior. First, internalization represents how other group members affect the individual due to the congruence of this individual values with other group members (Dholakia et al. 2004). Community members may transform community vision and values into their own beliefs. Therefore, this study adopted shared value as one of the important factors. Second, community identification is a sense of belonging and attachment for an individual identification to the community. Therefore, this study included community identification as one of the important factors. Third, trust is an essential part of social interaction (Cook et al. 2009). Trust is not only pointed out as a key element of knowledge sharing in the network but also forms the interpersonal relationship network; this then promotes the creation of effective knowledge and personal

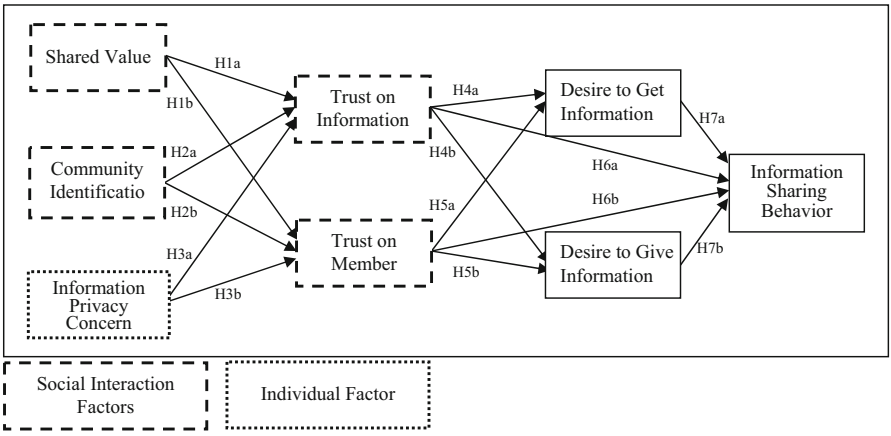

Fig. 1 Research framework

network sharing. Just like in the real world, "trust" in the virtual world plays an important role for inspiring people who work or entertain together. The reason people participate in community activities is that they think themselves as the community members, they trust each other, and devote themselves in the community (Preece and Shneiderman 2009). Therefore, this study included trust as one of the important factors in the model.

2.2 Social interaction factors

2.2.1 Shared value

The aggregation and assembly of shared value was initially developed based on organizational relationships. Traditionally, scholars have defined shared value as individual preferences regarding organizational culture (Cheng et al. 2008; Morgan and Hunt 1994). Cheng et al. (2008) incorporated shared value into organizational concepts, asserting that shared value is the extent to which people or partners possess common beliefs about what behaviours, goals, and policies are important or appropriate. Among studies that have discussed organizations, organizational partners tended to commit to organizational self-relationships when sharing value. This shared value facilitates mutual trust between members and enhanced member understanding of mutual behaviours and objectives.

From the perspective of social culture, shared value is the foundation of diverse culture and involves social compliance, norms, and behavioural objectives. A study regarding the cognitive perspectives of virtual community members emphasized that shared value connects different people, promotes similar modes of communication and interaction among differing people with similar values, generates a homogeneous symbolic system structure, and enables the formation of a sense of belonging: this results in the logical behaviour of becoming a virtual community member (Wu et al. 2010).

2.2.2 Community identification

The main contents of social identity perspective are self-categorization theory (e.g., Turner et al. 1987) and social identity theory (e.g., Tajfel and Turner 1986). Social identity theory describes the state of mind for collectivism of members (Zhou 2011). Social identity perspective involves clarifying the relationships among self-concept, group, and the phenomena of group (Bergami and Bagozzi 2000; Haslam 2004). In other words, people will define their own uniqueness of individual attributes and their collectivism attributes for groups (Homburg et al. 2009). Tajfel (1981) defined individual self-concept derived from the knowledge of shared value and emotion attached to his (her) social group (or groups) members. Ellemers et al. (1999) pointed out that social identity as a second-order construct, including three reflective dimensions: cognitive, affective and appraisal of social identity. First, the classification process to understand the individual shape of his members can reflect the perception of social identity. People will understand the similarities and dissimilarities of other members and outsiders (Dholakia et al. 2004). Second, the

affective social identity reflects the affective involvement; for example, the sense of attachment and belonging of users and community. Affective social identity increases the loyalty of members to the community (Lin 2008). Third, appraisal social identity reflects the perceived value and importance of users as a member of the community.

The concept of community identification explained intergroup member behaviour. Algesheimer et al. (2005) claimed community identification as the agreement of the community norms, traditions, rituals, goals of community members in the community and the willingness for the promotion of the community. Community identification is the sense of belonging and identification in the community, as well as the perception of pride being part of the community members based on the social identity theory. Yu et al. (2010) indicated that people naturally desire to belong to certain work teams and abide by team norms and values to obtain team recognition and support. When virtual community members consider themselves as belonging to the same peer group of other members, participation intention is formed within a goal-oriented relationship. Once the intention to participate in a community activity is formed, other members' suggestions and notions easily influence members. Relationships developed through interacting with other members also increase the influential power of other member opinions. Collective identities are gradually formed among social networking members because of these mutual contacts and interactions. After Internet users have established a collective identity within a group, they perceive that enhanced sense of collective identity not only facilitates the sense of pleasure for the consonant behaviour demonstrated within the virtual community but also promotes personal and group effectiveness in group activities (Park and Yang 2012; Yu et al. 2010).

2.2.3 Trust

Trust is considered a dependent relationship in social science. Trust in a virtual community is built by positive performances among members and the group. Trust reduces the uncertainty existing in a virtual environment to enable the formation of interpersonal relationships and facilitates effective knowledge creation and sharing of personal networks (Chai and Kim 2010; Wu and Sukoco 2010). Trust is a psychological state (Rousseau et al. 1998) and a multi-faceted concept. There were two kinds of trust (cognitive trust and affective trust) suggested by Lewis and Weigert (1985), and McAllister (1995) and (Riegelsberger et al. 2003). Cognitive trust builds on the reliability and credibility of its trading partners (Johnson and Grayson 2005). However, affective trust builds on care and concern among trading partners (Corritore et al. 2003). When a trust relationship is built, people in the relationship are willing to participate in cooperative interactions. If interpersonal trust is strong and stable, people could generously engage in knowledge searches, collections, and exchanges, thereby enhancing group contributions. Hence, trust facilitates information and knowledge sharing among social networking members (Chai and Kim 2010; Chen and Hung 2010; Lin et al. 2009; Ridings et al. 2002). Several social networking members are afraid of being criticized, or of misleading others, and thus avoid contributing knowledge. However, from the professional

community perspective, strong trust must be established before people form knowledge sharing intentions. Therefore, the concept that trust is the key element in sharing knowledge between participants is further strengthened (Hsu et al. 2007; Wu and Sukoco 2010).

Trust in information entails the rational trust that virtual community members have regarding Internet information. Trust is developed based on the intention of members or users to use the Internet information and provide personal data because of privacy policies and impressions that have on the SNSs (Wu and Sukoco 2010). Trust in members refers to the emotional trust formed among members that interact frequently through the virtual community. SNSs users who trust other members care about member feelings, believing that other members are friendly; therefore, users would not behave maliciously and would trust messages shared by other members (Wang and Chen 2012). Trust is the important influential factor to affect the willingness of exchange messages with other members and continuous involvement in the community of uses in a virtual environment (Blanchard et al. 2011; Ridings et al. 2002; Yeh and Choi 2011).

2.3 Shared value and trust

According to the commitment-trust theory, shared value is a critical antecedent of trust and commitment because people can increase their ability to predict behavioural intention of others through shared value within the group. When these people share value, they are willing to maintain social relationships (Wu et al. 2010). Previous studies have considered shared value a crucial factor for predicting social trust. Morgan and Hunt (1994) reported that when group members exchange shared value, they are committed to relationships in the group, and that they trust the group. In social relationship research, Yang and Farn (2009) considered shared value a part of social capital. When people exhibit increased cultural value, they feel an enhanced sense of trust in their partners (Cazier et al. 2006).

Kassim and Ahmed Abdulla (2006) pointed out the existence of a positive relationship between shared value and trust in the online service context. Service providers will increase the website's sense of trust if they can enhance the brand belief and value of their community members in the online community information delivery services context. Likewise, apart from interacting with the community service providers, the members of the same community generate a sense of trust because members of the community have similar language and ideas with similar interests and values to communicate with each other in the community environment context. For example, Wu et al. (2010) indicated that virtual community members with shared community value tended to maintain relationships in the community, and these shared value enhanced trust and positive expectations toward the virtual community. Based on shared value, companies could build a market with a group of customers who are attracted to them because certain value aspects may yield multiple extrinsic benefits; one such example could be consumer trust toward personal information usage (Cazier et al. 2006). In other words, sharing customers' value encouraged customers to trust how their personal information is used by a website. Lin and Lu (2011) pointed out that community members' shared value has

significant and positive effect on members' trust in Facebook fan pages. Therefore, we propose the following hypothesis:

H1 Shared value has significant and positive effects on (a) trust on website and (b) trust on member.

2.4 Community identification and trust

The primary function of trust existence is relatively more imperative in the study of social sciences (compared with that in the field of psychology) because trust is indispensable in social relationships (Lewis and Weigert 1985). Wang and Chen (2012) stated that social interactions are related with the intimacy and communication frequency among virtual community members. Intensive social interactions strengthen interpersonal relationships between group members, particularly in website-supported virtual communities. Virtual community members trust the members they interact with because of their frequent interactions. Therefore, social interactions stimulate and enhance trust between members. Yu et al. (2010) indicated that people tend to interact with those who they believe are similar to themselves (e.g. perceptions and behaviours). These similar thoughts and behaviours yield group identification, and strengthened intra-organizational identities, which easily built trust between virtual community users and other members (Kim et al. 2012).

Community identification is an important factor of the community characteristics to predict the community members' behaviours in the virtual community (Kim et al. 2012). Research has confirmed that community members with identification will not only share their hobbies and goals but also will lead other community members with similar feelings, beliefs and behaviours in the virtual community (Dennis et al. 1998; Dutton and Dukerich 1991). Therefore, the sense of identification in a virtual community enhances the trust relationships among members, and facilitates their trust to the messages delivered by common community organizations which they belong to (De Cremer and Van Vugt 1999). Similarly, community members generate the sense of trust to their website because of community identification. Therefore, we propose the following hypothesis:

H2 Community identification has significant and positive effects on (a) trust on website and (b) trust on member.

2.5 Individual factor: privacy concern

Privacy concern refers to people's concern about personal information collected and used by organizations. Privacy is considered the right of being undisturbed and the self-management control process when transmitting information to others. Based on the management information systems (MISs), privacy is defined as the ability to control the collection and usage of personal data or information. Among discussions in the field of information, privacy is regarded as the ability to control the procurement and usage of personal information or data (Dinev and Hart 2005; Mohamed and Ahmad 2012; Pavlou et al. 2007). Privacy concern affects online

consumers' behaviours (Awad and Krishnan 2006). Online external circumstances may affect an individual's privacy concern. These online external circumstances include online platform (Chen and Barnes 2007; Hernandez and Mazzon 2007) and online transaction (Dinev and Hart 2006; Van Slyke et al. 2006). Consumers try to avoid the possibility of privacy occurrence by decreasing online usage times and reducing disclosure their information within SNSs (Dwyer et al. 2007).

Privacy concern is a measure of subjectivity; people exhibit differing levels of concern for their privacy (Buchanan et al. 2007). When people register or sign into SNSs, their actions imply that they are consciously leaking or disclosing personal information. Despite the privacy protection policies provided by SNSs, several SNSs users have chosen not to employ the privacy protective measures, or intentionally disable the protection setting (Mohamed and Ahmad 2012).

2.6 Privacy concern and trust

Privacy violations on the SNSs are a big concern, and the need for protection of information transaction is crucial. Privacy meanings associated with online social networks depend on the distinguishability of the information provided and the probability of this information being accepted or used. Shin (2010) defined privacy as the personal ability to control personal information acquisition and usage. In addition to feeling doubts about the acquisition and control of information, Internet users increasingly perceive the existence of online scams. Therefore, only 6 % of US Internet users have a high level of trust toward the webpage they access (Dinev and Hart 2005). Malhotra et al. (2004) indicated that two problems involved in the release of personal information on the Internet: trust beliefs and risk beliefs. The high privacy concern of Internet users suggests that users demonstrate a low level of trust beliefs and high level of risk beliefs. People who have increased concern about personal information privacy might study related policies to protect their privacy interests. Based on the social exchange theory, Dinev and Hart (2006) explained that user intentions to provide information online depended on their risk and interest concerns. High risk reduces trust, thereby lowering the intention to disclose personal information (i.e. users' privacy concerns directly reduce their trust in using the Internet and having the opportunity to interact with other members of the community).

Privacy protection is a necessary condition in online communication and transactions (Wu et al. 2010). Eastlick et al. (2006) examined the relationship between consumers' privacy concern and e-tailers' trust. Their empirical findings confirmed that consumers' privacy concern reduces e-retailers' trust. Web vendors could increase consumers' trust through the enhancement of privacy protection to eliminate the privacy concern (Warrington et al. 2000; Wu et al. 2010). Similarly, service researchers have suggested that customer-to-customer interaction may affect customer evaluation of the service experience (Wu 2008). In the community environment, community service providers should enhance consumers' privacy concern to industry, thereby strengthening the interaction between community members (Wang and Chen 2012). Thus, the community platform can increase the sense of trust between community members if the community platform could

protect the personal information of community members and create common consciousness and social norms of the community. Therefore, we propose the following hypothesis:

H3 Information privacy concern has significant and negative effects (a) trust on website and (b) trust on member.

2.7 Desire to get and give information

Behavioural intentions proposed in the TRA model, was used to predict people's behavioural intentions in society (Ajzen and Fishbein 1969). Intention is the tendency to determine whether the individual has the willingness to execute, expect, or plan his or her future behavior. In the past study, intention was the best construct for predicting personal future behavior (Fishbein and Ajzen 1975, 1980; Lam and Hsu 2006; Swan 1981). The theoretical model was used to measure the relative willingness of people undertaking certain behaviour. Henning-Thurau et al. (2004) pointed out that Internet allows consumers to express their opinions through platforms on the network clearly, while other consumers can see these comments anytime and anywhere. Due to the Internet becoming more advanced, online WOM behavior includes two kinds of behaviors: get information; and give information. Getting information entails the process of enquiring on community members, or about searching within the information content shared in the community to acquire topics of interest, or even about the process of learning about issues. Giving information involves answering enquiries of other members or voluntarily commenting on or observing intra-community activity. Therefore, from the perspective of knowledge sharing, get/give knowledge intentions are equally vital (Kang and Shin 2008). This study further categorized the desire to share information on Facebook into the desire to get/give information for analysis.

2.8 Trust and desires to get/give information

People trust others easily in a traditional community because they can elect not to contact those whom they do not trust (Ridings et al. 2002). Moreover, online participation behaviour is open and voluntary, and knowledge contributors are not required to provide any guarantees or promises concerning their behaviours; thus knowledge seekers cannot confirm the identity and knowledge quality of knowledge contributors (Wasko and Faraj 2005). Consequently, trust is considered a crucial influencing factor in online knowledge sharing behaviour (Chen and Hung 2010; Lin et al. 2009; Ridings et al. 2002).

Ridings et al. (2002) noted that trust between community members increases knowledge-acquisition intentions because the information value depends on the honesty and willingness to help knowledge providers. People pose questions in a community because of their trust toward the community. Inquirers believe that good faith determines the provision of knowledge (i.e. knowledge provision is managed and controlled by people's good faith in a community). The desire of community members to provide information is also based on trust on website and other

members. Compared with enquiring, providing information involves self-exposure. Thus, community members do not exhibit exposure behaviour unless they trust the community (Schoorman et al. 2007; Wu and Sukoco 2010).

In a social relationship investigation, Yang and Farn (2009) points out that affect was a part of social capital, which could strongly reflect interpersonal connections. When people possess an enhanced social capital in social networks, they tend to benefit from other friends and thus maintain interpersonal relationships within the social network. Therefore, because of reciprocal relationships, people with increased social capital consciously provide knowledge in social networks. In other words, affective trust in the social capital can raise knowledge-sharing intention. Community members easily exclude fear or shyness and are willing to share information in the community, thereby creating knowledge, if they trust other members of the community (Hsu et al. 2007). In addition, Renzl (2008) indicated the importance of interpersonal trust and trust in management on information sharing. Renzl argued that trust in management was shown to enhance sharing behaviours. Therefore, we propose the following hypothesis:

H4 Trust on website has significant and positive effects on (a) the desire to get information and (b) the desire to give information.

H5 Trust on member has significant and positive effects on (a) the desire to get information and (b) the desire to give information.

2.9 Information sharing behavior

In an organization, information sharing behaviour is defined as the dissemination or propagation of personal knowledge or information to other members in the organization. Knowledge sharing in an organization involves communication during information transfer (Lin et al. 2009). Concerning knowledge management, knowledge seekers obtain information through various modes, such as knowledge exchanges and knowledge sharing (Kuo and Young 2008). On SNSs, users can share personal knowledge using various website-provided data transmission services, such as personal profiles, comments, private messages, blogs, multimedia file sharing, and instant messages. From the perspectives of knowledge library, Chai and Kim (2012) claimed that the content created by SNSs users can be used as an Internet social resource, particularly knowledge and information. In addition, users actively engage in self-creation and sharing using advanced technologies, and employ the content they created to attract other users to browse their web pages.

Information sharing is similar to knowledge sharing. Knowledge sharing is defined as disseminating or propagating personal knowledge or information to other members in the organization. Knowledge sharing in an organization also involves communication during information transmission (Lin et al. 2009). Knowledge can be used to create and maintain organizational competitive advantages and is a valuable intangible asset. Therefore, numerous scholars have investigated knowledge sharing within an organization (e.g., Kuo and Young 2008; Lin et al. 2009; Tsai and Cheng 2010).

In SNSs, users can share personal knowledge by using various website-provided data transmission services, such as personal profiles, comments, private messages,

blogs, multimedia file sharing, and instant messages. From the perspective of knowledge library, Chai and Kim (2012) indicated that users can create content on SNSs, which can subsequently be used as an Internet social resource, particularly knowledge and information.

2.10 Trust and information sharing behaviour

Trust is critical in knowledge dissemination and is a crucial influencing factor in societal knowledge transfers and conversions. Based on a technological perspective of integrated Internet and human community, building trust is the first step to establishing a trust relationship when users participate in and devote to Internet knowledge transfers. Within the trust relationship of online communities, trust not only serves as a governing role in online community information transfers and exchanges but also enables the creation and maintenance of knowledge-exchange relationships, which engenders improved knowledge quality (Chai and Kim 2010; Chen and Hung 2010; Lin et al. 2009).

When trust is formed, people in the relationship are willing to participate in, and devote to, cooperative interactions (Chai and Kim 2010; Lin et al. 2009; Ridings et al. 2002). Strong and stable interpersonal trust facilitates generous knowledge exchanges, searches, and information collection, and further improves contribution performance in the community. Hence, trust encourages knowledge and information sharing between online community members (Chai and Kim 2010; Chen and Hung 2010). In a trusting environment, the existence of trust among people not only enhances information sharing intentions, but also develops the sense of duty to engage in sharing behaviour. Thus, people share information to prevent themselves from violating this duty (Zhang et al. 2010).

However, people easily become vulnerable because not all are able to get the information and expertise required, and not all want to participate in services provided by the network. Some studies have found that online businesses makes consumers trust the website to explore the website and get the website information through the establishment of a sound network environment and transport protocols (Corritore et al. 2003; Flavian et al. 2006; McKnight et al. 2000). Once consumers feel trust and satisfaction on the website (business environment; finance, technology, human resources etc.), which consumers will take the initiative to share their consumption experiences in their own site or leave a message related experience (Brilliant and Achyar 2013; Ganesan 1994; Murphy and Blessinger 2003). Therefore, we propose the following hypothesis:

H6 (a) Trust on website and (b) trust on member have significant and positive effects on information sharing behaviour.

2.11 Desire to get/give information and information sharing behaviour

Davis (1993) proposed TAM, which is extended from the theory of planned behaviour. The influence of intentions on behaviour was retained in the theoretical model, thereby revealing the importance of this influence. This positive relationship

has also been supported by previous studies (e.g., Alajmi 2011; Bock et al. 2005; Chen IYL and Chen NS 2009; Kuo and Young 2008; Tsai and Cheng 2010). Community members share information with each other. Besides providing information through community, individual keeps track of their own joined community and concerns about the dynamic information about goods and activities in order to get more information about brand products. Consequently, the research framework in this study adopted the relationship between behavioural intentions and actual behaviour, which was proposed by previous studies, to extend and validate the relationship between the desire to get and give information and information sharing behaviour. Therefore, we propose the following hypothesis:

H7 (a) Desire to get information and (b) desire to give information has significant and positive effects on information sharing behavior.

3 Research methodology

3.1 Research design and data collection

Social Media Examiner surveyed 3300 staff of Social Media Marketing and found that Facebook, Twitter, LinkedIn, and blogs were the most important four marketing platforms with at least 73 % of marketers planning to increase the use of these platforms. Facebook replaced Twitter and became the most important platform in 2010 (Business Next 2011). The population of this study consists of people who have used Facebook fan pages for more than 6 months in Taiwan. This study used a website questionnaire, and the study placed questionnaires on the mySurvey website questionnaire services to collect data. On the sampling for the target respondents in this research, this study set up a filtering question to ask respondents whether they have used Facebook fan page for more than 6 months at the beginning of the questionnaire. If respondents answered "Yes", they could continue to answer the questionnaire; if they answered 'No', they did not need to answer the questionnaire.

This study applied three phases to conduct pretest and formal survey (phase I and phase II). The first phase was pretest and the second phase (formal survey phase I) and third phase (formal survey phase I) were formal survey. The idea of pre-test was to revise the wordings of the questionnaire in order to clarify the confusion and semantics of questionnaire from points of view of the members of community fans. Pre-test focused on the sentence/textual revisions. Pre-test dealt with the wording test of questionnaire through 10 rounds of 100 members (each round with 10 members) with one-to-one interview to confirm the wordings and contents of questionnaire. Pre-test mainly focused on the semantic confusion of the questionnaire to make questionnaire clearer and express context more appropriate for the members of community fans.

The formal survey separated into the second and third phases (formal survey phase I and II). For more accurate and objective measurement of user behaviour, this study used longitudinal analysis. It was necessary to measure the users' behaviours for two different time periods because this study involved future

intentions and actual behaviour in the past. The data collected in the second phase (formal survey phase I) included shared value, community identification, information privacy concern, trust on website, and trust on member, desire to get information, desire to give information, and demographics. This study conducted the formal online survey phase I from February 3, 2013 to February 27, 2013 for the second phase. This study linked questionnaire to the mySurvey website so that the respondents could answer the questionnaire and leave their e-mail accounts during the formal online survey phase I. This study collected 1118 valid respondents from 1451 respondents with a usable response rate of 77.05 % for the formal online survey phase I.

This study conducted the third phase (formal survey phase II) after 3 months of the second phase (formal survey phase I) for the 1118 valid respondents to detect the information sharing behaviour of the virtual community members. This study linked questionnaire to the mySurvey website and notified those 1118 valid respondents of

Table 1 Demographics of respondents

Variable	Frequency	Percentage
Gender		
Male	390	53.65
Female	337	46.35
Age		
<15	28	3.85
16–20	317	43.60
21–25	239	32.88
26–30	70	9.63
>31	73	10.04
Education		
Journal high school	3	0.41
High school	138	18.98
College	517	71.12
Graduate	69	9.49
Job		
Industry and commerce	90	12.38
Service trade	62	8.53
Army and police	8	1.10
Educator	16	2.20
Student	535	73.59
Other	16	2.20
Member duration		
<1 year	64	8.80
1–3 years	528	72.62
4–6 years	128	17.61
7–9 years	5	0.69
More than 9 years	2	0.28

the formal online survey phase I with e-mail to answer the questionnaire. This study conducted the formal online survey phase II from May 13, 2013 to May 30, 2013 for the third phase. This study obtained 727 usable responses, showing a usable response rate of 65.02 % for the formal survey phase II. The gender breakdown of respondents was as follows: 53.65 % of the respondents were male, and 46.35 % of the respondents were female. The data showed the age criterion to be as follows: 43.60 % were between 16 and 20 years, and 71.11 % were college students. The percentage of member duration between 1 and 3 years was 73.59 % and followed by between 4 and 6 years 17.61 %, respectively. Table 1 shows the demographics of respondents.

Socialbakers (2013) pointed out that the gender ratio of Facebook users was one to one in Taiwan. This study adopted the gender ratio of the sample as a representative estimation of the gender ratio group of the population of Taiwan. This research conducted the Chi square test to confirm the representative of the sample similar to the population. The results showed that the χ^2 value was 2.697 with the degree of freedom 1, $p = 0.101 > 0.05$, failing to reject the null hypothesis. This indicated that the gender ratio of the sample was similar to the gender ratio of Taiwan's population as announced by Socialbakers Website (http://www.socialbakers.com/facebook-overview-statistics/).

In order to resolve the problem of non-response bias, this study adopted the suggestion of Armstrong and Overton (1977) to divide the samples into before and after two periods for the formal online survey phase II. This study conducted the Chi square test to detect the presence of non-response bias for part of demographics of the subjects. Table 2 shows that there are no response biases in this study (p value > 0.05).

Self-reported data with two or more constructs collected from the same source may possibly lead to a common method variance (CMV) problem. Usually, there are three ways to evaluate the CMV problem: Harman's one-factor test for exploratory factor analysis (EFA), one-factor test for confirmatory factor analysis (CFA), and the model fit test. There are three conditions to show that no CMV problem exists in the self-reported data. First, the variance explained by the first factor extracted from the EFA is not significantly large (larger than 50 %). Second, not all of the factor loadings for all the measurement items of constructs in the model are significant (factor loadings larger than 0.5). This means that there is no CMV problem if at least one of the factor loading of measurement items is not significant (factor loading <0.5) in the model. Third, the model fit of the

Table 2 Chi square test of non-response rate

Measurement items	Pearson Chi square value	*df*	*p* value
Gender	0.10647	1	0.74420
Age	5.45948	4	0.24331
Education	4.62925	3	0.20105
Job	4.21704	5	0.51861
Member duration	1.92533	4	0.74949

Table 3 Measurement model

Scale/item	Factor loading	SMC	CR	AVE	Cronbach's α
Shared value			0.819	0.601	0.819
I have compatible goals with my friend in Facebook	0.786	0.618			
I am enthusiastic about pursuing the collective missions of my friend in Facebook	0.765	0.585			
I and my partner support each other's goals	0.774	0.599			
Community identification			0.946	0.815	0.945
I see myself as a member of Facebook	0.917	0.841			
I am glad to belong to Facebook	0.919	0.845			
I feel strong ties with other members of Facebook	0.855	0.731			
I identify myself as a member of Facebook	0.918	0.843			
Information privacy concern			0.864	0.520	0.866
I am concerned that Facebook is collecting too much information about me	0.590	0.348			
It bothers me when Facebook asks me for personal information	0.648	0.420			
I am concerned about my privacy when browsing Facebook	0.621	0.386			
I have doubts as to how well my privacy is protected on Facebook	0.701	0.491			
My personal information could be misused when transacting with Facebook	0.858	0.736			
My personal information could be accessed by unknown parties when transacting with Facebook	0.860	0.740			
Trust on website			0.947	0.817	0.946
Facebook has enough safeguards to make me feel comfortable to divulge personal information	0.919	0.845			
Facebook does not use personal information for any purpose unless it has been authorized by the moderator	0.925	0.856			
Facebook never sells the members' personal information kept in its computer databases	0.925	0.856			
Facebook protects personal information from unauthorized access	0.844	0.712			
Trust on member			0.897	0.685	0.896
Overall, the people in Facebook are very trustworthy	0.829	0.687			
We are usually considerate of one another's feelings in Facebook	0.853	0.728			
The people in Facebook are friendly	0.836	0.699			
I could rely on those with whom I work in my group	0.792	0.627			
Desire to get information			0.886	0.723	0.885
I come to Facebook to get information on a particular topic	0.815	0.664			
I use Facebook when I want advice on how to carry out some task	0.883	0.780			

Table 3 continued

Scale/item	Factor loading	SMC	CR	AVE	Cronbach's α
I come to Facebook when I need facts about a particular subject	0.851	0.724			
Desire to give information			0.823	0.700	0.823
I come to Facebook to give other participants information I know about a particular subject	0.821	0.674			
I come to Facebook to share my skills and abilities with other participants	0.852	0.726			
Information sharing behavior			0.807	0.375	0.807
I frequently leave my feedback/comments on Facebook	0.555	0.308			
I spend time on my Facebook to update new information and knowledge	0.645	0.416			
I update my Facebook regularly	0.599	0.359			
I frequently share my experience or know-how with other users	0.647	0.419			
I share my educational knowledge with other users	0.648	0.420			
I provide my knowledge and useful information at the request of other users	0.607	0.368			
I post useful documents or files on my Facebook to share with other users	0.578	0.334			

$\chi^2 = 1087.775$, $df = 467$, $p < 0.001$, $\chi^2/df = 2.329$, GFI = 0.915, AGFI = 0.898, RMSEA = 0.043, RMSR = 0.040, NFI = 0.932, CFI = 0.960

single-factor test is worse than the model fit of the proposed model. It means there is no CMV problem if the model fit of the proposed model is better than the model fit of the single-factor test. This study used SPSS software to conduct Harman's one-factor test for exploratory factor analysis (EFA), and this study used AMOS software to conduct the confirmatory factor analysis (CFA) and model fit test.

This study conducted Harman's one-factor test with the Varimax Method factor extraction (Harman 1967; Podsakoff and Organ 1986). The test standard for the first factor explained that variance must be <50 %. The test extracted seven factors, and the explained variance of the first factor was 30.193 %. In addition, this study performed confirmatory factor analysis (CFA) with all thirty-three items in the survey. The result indicated that at least one of the factor loading of measurement items was not significant (factor loading <0.5) in the model. The model fit of the single-factor test was worse ($\chi^2 = 8848.027$, $df = 495$, $\chi^2/df = 17.875$, GFI = 0.491, AGFI = 0.423, RMSEA = 0.152, RMSR = 0.164, IFI = 0.457, CFI = 0.456) compared with the model fit of the proposed model ($\chi^2 = 1393.277$, $df = 478$, $\chi^2/df = 2.915$, GFI = 0.892, AGFI = 0.873, RMSEA = 0.051, RMSR = 0.068, IFI = 0.941, CFI = 0.940). The results indicated there was no CMV problem in this research.

Table 4 Correlation matrix

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Shared value	3.69	0.63	1							
2. Community identification	3.86	0.56	0.588***	1						
3. Information privacy concern	5.17	1.02	0.175***	0.128***	1					
4. Trust on website	4.23	1.17	0.276***	0.366***	−0.134***	1				
5. Trust on member	5.19	0.95	0.552***	0.587***	0.276***	0.268***	1			
6. Desire to get information	5.41	0.99	0.507***	0.508***	0.182***	0.260***	0.512***	1		
7. Desire to give information	5.24	0.98	0.562***	0.621***	0.175***	0.257***	0.473***	0.547***	1	
8. Information sharing behavior	5.21	0.86	0.357***	0.366***	0.122***	0.104**	0.275***	0.301***	0.444***	1

** $p < 0.01$; *** $p < 0.001$

3.2 Measure

This study measured all of the constructs included in the proposed model with multi-item scales drawn from previous studies to fit the context of this study. The scale for measuring shared value was adapted from Cheng et al. (2008). The scale for community identification was adopted from Park and Yang (2012). While information privacy concern was derived from Pavlou et al. (2007), trust was adopted from Wu and Sukoco (2010), and from Wang and Chen (2012). The scales for desire to get/give information were adapted from Ridings et al. (2002). Information sharing behavior was derived from Chai and Kim (2012). All of the items were measured on a seven-point Likert scale (1: strongly disagree, 7: strongly agree), except for the information sharing behavior. Table 3 presents measurement constructs and confirmatory factor analysis.

4 Results

4.1 Measurement model

This study used AMOS 17.0 program to conduct the structural equation modeling (SEM) for both measurement model and structural model (the casual relationships among constructs). Bagozzi and Yi (1988) proposed confirmatory factor analysis evaluation criteria and both Anderson and Gerbing (1988) and Gefen et al. (2000) recommended to assess data with model fit index for measurement model. The measurement model showed adequate fit: $\chi^2 = 1087.775$, $df = 467$, $\chi^2/df = 2.329$, GFI = 0.915, AGFI = 0.898, RMSEA = 0.043, RMSR = 0.040, NFI = 0.932, CFI = 0.960 (see Table 1). The composite reliability and average variance extracted, based on the criteria of Gaski and Nevin (1985), met the criteria and indicated good convergent validity (Bagozzi and Yi 1988). Table 1 shows the data of good convergence. Evidence of discriminant validity exists when the square root

Table 5 Model fit analysis

Index	Criteria	Results
χ^2	–	1393.277
	$p < 0.05$	$p < 0.05$
χ^2/df	<3	2.915
GFI	>0.8	0.892
AGFI	>0.8	0.873
RMSEA	<0.08	0.051
RMSR	<0.05	0.068
IFI	>0.9	0.941
NFI	>0.9	0.912
CFI	>0.9	0.940
PNFI	>0.5	0.826
PGFI	>0.5	0.760

of the average of variance extracted in each construct exceeds the coefficient correlation of this particular construct with other constructs (Fornell and Larcker 1981; Gaski and Nevin 1985). As presented in Table 4, each of the coefficient correlation was significant between constructs and met the criteria of discriminant validity: this makes it suitable for the structural model. Based on the evaluation criteria of Hair et al. (2010), the measurement model showed adequate fit. Table 5 showed the results of model fit analysis.

4.2 Structural model

Structural Equation Modeling (SEM) is a statistical methodology to estimate the linear relationships among variables for validating the overall effect between exogenous variables and endogenous variables. The model can handle the relationship between a set of, and groups of, exogenous and endogenous variables simultaneously. This study conducted the structural model by using maximum likelihood estimation (MLE) with AMOS 17.0 program to examine the casual relationships among constructs. This study used the reflective model because respondents were triggered on the reaction of the construct as observed measures to be the reflective indicators for constructing an unobservable concept (MacCallum and Browne 1993). The theory of reflective model can clarify the relationship between construct and measurement items (Jarvis et al. 2003).

The structural model showed adequate fit: $\chi^2 = 1393.277$, $df = 478$, $\chi^2/df = 2.915$, GFI = 0.892, AGFI = 0.873, RMSEA = 0.051, RMSR = 0.068, NFI = 0.912, CFI = 0.940. Table 4 showed the results of model fit analysis. This study analyzed the paths shown in Fig. 2. H6a, H6b, and H7a were not supported, the remaining hypotheses are all supported as followed; shared value has significant and positive effects on (a) trust on website, and (b) trust on member. Community identification has significant and positive effects on (a) trust on website, and (b) trust

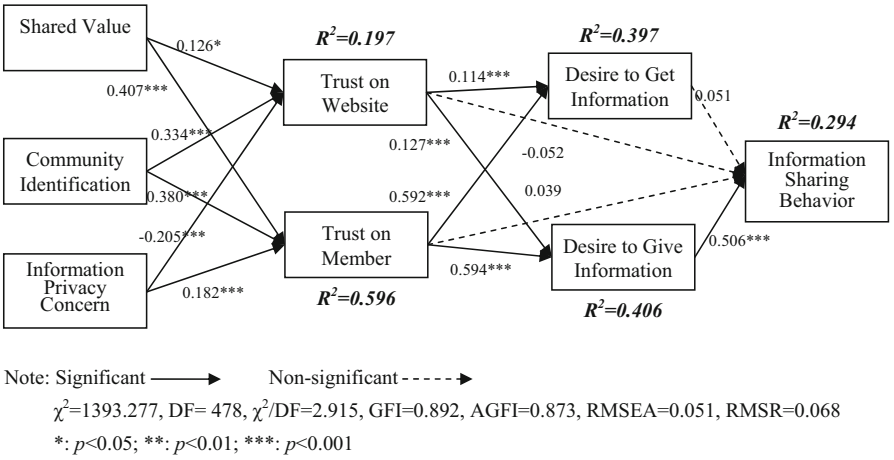

Fig. 2 Structural model results

on member. Information privacy concern has significant and negative effects on (a) trust on website, and (b) trust on member. Trust on website has significant and positive effects on (a) desire to get information, and (b) desire to give information. Trust on member has significant and positive effects on (a) desire to get information, and (b) desire to give information. Members' desire to give information has significant and positive effect on information sharing behavior. This study used the reflective model because respondents were triggered on the reaction of the construct as observed measures to be the reflective indicators for constructing unobservable concept (MacCallum and Browne 1993). The theory of reflective model can clarify the relationship between construct and measurement items (Jarvis et al. 2003).

The SEM analyses show that the desire to give information has significant and positive effect on information sharing behavior. Therefore, this study further explored the mediating effects of desire to give information between trust on website/member and information sharing behavior. Table 6 showed the results of the Sobel tests were all significant (>1.96) and the 95 % confidence intervals of 2000 simulations of bootstrapping did not contain 0, indicating that the desire to give information were the mediators between trust on website/member and information sharing behavior (Efron and Tibshirani 1993; Sobel 1982).

Furthermore, the regression analysis shown in Table 7 showed that desire to give information fully mediated the relationship between trust on website and information sharing behaviour. Meanwhile, desire to give information partially mediated the relationship between trust on member and information sharing behaviour (Baron and Kenny 1986).

In addition, from the explained variance of endogenous variables, only trust on member and desire to give information had good explanatory power (59.6 and 40.6 %) (see Fig. 2). The results showed that: (1) shared value, community identification, and information privacy concern were not sufficient enough to explain the community members' trust on website, but can explain trust on member; (2) community members' trust on website and trust on member were able to explain desire to give information; and (3) desire to get information and the desire to give information were not sufficient to explain the information sharing behavior of virtual community members.

This study compared the proposed model and revised model. This study tried a new model without H6a and H6b (see Fig. 3). The results showed that the model fit are not significant different between the proposed model and the revised model.

Table 6 Bootstrapping analysis for the mediating effects of trust

IV	M	DV	Indirect effect	Mean	SE	Bootstrapping 95 % CI			
						Percentile method		Bias-corrected	
						Lower	Upper	Lower	Upper
TW	GIVE	BHV	0.085	0.085	0.017	0.547	0.123	0.055	0.123
TM	GIVE	BHV	0.174	0.174	0.027	0.123	0.229	0.122	0.230

IV independent variable, *M* mediate variable, *DV* dependent variable; *TW* trust on website, *TM* trust on member, *GIVE* desire to give information, *BHV* information sharing behavior

Table 7 Mediating effects of trust

IV	M	DV	IV → DV	IV → M	IV + M → DV		Sobel test	
					IV	M	Statistic (Z)	*p* value
TW	GIVE	BHV	0.077**	0.216***	0.008	0.393***	6.233	0.000
TM	GIVE	BHV	0.250***	0.488***	0.076*	0.356***	8.576	0.000

IV independent variable, *M* mediate variable, *DV* dependent variable, *TW* trust on website, *TM* trust on member, *GIVE* desire to give information, *BHV* information sharing behavior

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

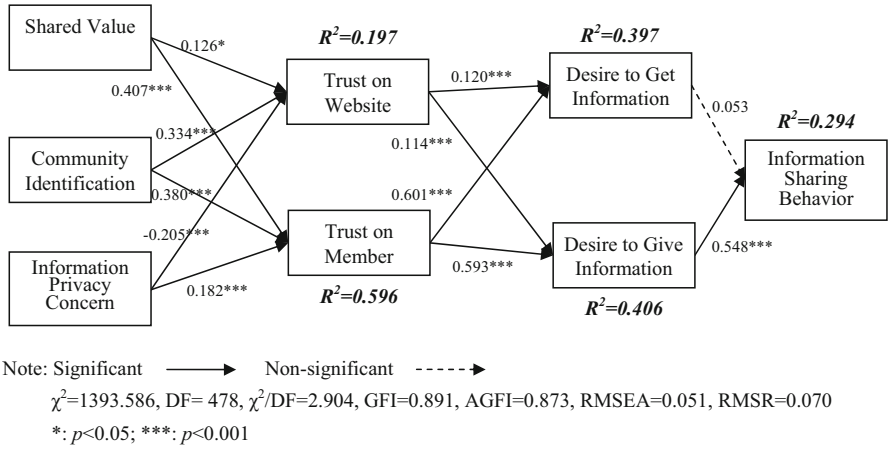

Fig. 3 Revised model results

5 Discussion

5.1 Research implications

First, the results showed that shared value, community identification and information privacy concern concurrently influenced trust on website and trust on member. Previous studies have shown that shared value and community identification had significant and positive influences on trust in virtual communities (Cazier et al. 2006; Kim et al. 2012; Morgan and Hunt 1994; Wang and Chen 2012; Wu et al. 2010; Yang and Farn 2009; Yu et al. 2010) and privacy concern had significant and negative influence on trust (Dinev and Hart 2005; Malhotra et al. 2004). Because the coexistence of cognition and affect is necessary (McAllister 1995), and considering the two dimensions of cognitive trust and affective trust, which is built based on cognitive trust, this study examined the antecedents that influenced different trust. Trust on website exhibited a significant and positive relationship with shared value and community identification and a significant and negative relationship with information privacy concern. However, regarding trust on member shared value,

community identification and information privacy concern positively influenced trust on member.

Second, trust on website and trust on member significantly and positively influenced desire to get and give information in the community. The desires to get and give information were equally vital in knowledge sharing (Kang and Shin 2008). This study further divided the desire to share information in virtual communities into the desires to get and give information. The results confirmed that trust on website and trust on member positively influenced the desires of virtual community members to get and give information. In addition, trust had a substantially greater influence on the desire to give information compared with the desire to get information in virtual communities.

Third, this study found that in virtual communities, only the desire to give information yielded information sharing behaviour, whereas the desire to get information did not generate this behaviour. Previous studies have claimed that if trust was formed on the basis of interpersonal emotions, people would sincerely share their emotions and form reciprocal relationships (Dunn et al. 2011). Our empirical results indicated that despite community members developing sufficient trust in other virtual community members due to the developed trust generating the desire to get and give information, only the people who desired to give information exhibited information sharing behaviour. Therefore, even community members of fan page are willing to release the information of related brand products, events and other issues to other members of this community. It is not necessarily that they are willing to increase participation in community activities in the future (Hsu 2012). This study refers that some of the users are lower involvement group. Although they are willing to provide information to the community members at the moment, it does not mean that they will continue to participate in group activities and get the relevance news of fan page in the future. Virtual community should strength its members' desire to give information based on the foundation of trust. It will help to increase the information sharing behaviour of community members.

Fourth, shared value, community identification, and information community identification explained greater variance regarding trust on virtual community members than trust on website. When investigating trust, based on the multifaceted viewpoints of previous studies on online trust (e.g., Chai and Kim 2010; Dunn et al. 2011; Hsu et al. 2007; McAllister 1995; Parayitam and Dooley 2009), this study adopted online behaviour-derived trust on website and virtual community-related trust on member as the research focus. The results indicated that trust on website exhibited an explained variance of 19.7 % and trust on member showed an explained variance of 59.6 %, revealing that shared value, community identification and information privacy concern did not adequately explain the trust on website, but can infer the level of trust that members have toward other members in the community.

Fifth, virtual community member's trust on website and trust on member exhibited a satisfactory and close explained variance of the desires to get and give information. The desires to get and give information could not adequately explain information sharing behaviour in virtual communities. In a study on behavioural intentions, Kang and Shin (2008) stated that knowledge acquisition intentions and

knowledge provision intentions were equally vital when viewed from the perspective of knowledge sharing. Therefore, this study divided intention into information acquisition and provision intentions for analysis. The explained variance of the desire to get information was 39.7 %, whereas that for desire to give information was 40.6 %, which confirmed that the explained variance of virtual community member trust on website and on member for the desires to get and give information was significant. The desires to get and give information only exhibited an explained variance of 29.4 % for information sharing behaviour, indicating that information acquisition and provision intentions had limited influences on the information sharing behaviour in virtual communities.

Sixth, the desire to give information was the mediators between the trust on website/member and information sharing behaviour. Previous studies have indicated that interpersonal interactions form trust. The trust established in the virtual community is strong and stable, which enhances the willingness of people who trust each other to interact with each other, thereby improving group contributions (Chai and Kim 2010; Chen and Hung 2010; Lin et al. 2009; Ridings et al. 2002). However, the results showed that trust formed in virtual communities must be driven by a desire to give information to actually result in information sharing behaviour.

5.2 Implications for practice

Traditional online privacy concern is frequently utilized to discuss business behaviours. Pavlou et al. (2007) asserted that in an exchange relationship, online sellers collect buyer's personal and financial information for marketing strategy planning. When sellers profit by acquiring personal information, buyers regard this as an invasion of privacy which results in online ethical issues concerning personal information-detection behaviour. Payment behaviour has also been observed on Facebook (e.g., virtual currency purchases). In addition, the personal information required for website registration is similar to those needed when engaging in online business behaviours. Therefore, Facebook users have begun to focus on privacy issues (Acquisti and Gross 2006). Moreover, online information sharing behaviour is extremely popular, particularly the "Check In" function on Facebook, which enables users to show their current location to others immediately. The "Status Update" and "Upload Photo/Video" functions have also increased personal information exposure rates. Thus, Facebook users who are eager to update their statuses are less considerate of other's personal privacy and online risks and exhibit a low level of consideration for privacy concern (Hoadley et al. 2009).

Online communication facilitates relationship building and improves member communication and interactions. Virtual communities provide people with a channel to maintain and consolidate social connections (Bicen and Cavus 2011; Raacke and Bonds-Raacke 2008). One broad definition of community is people gathering in the same space and time based on common interests. Community is considered to promote kinship interactions and social bonding (Koh and Kim 2003; Wang and Chen 2012). Through several decades of research, recent studies have defined virtual communities as groups of people with common interests and objectives who formed group relationships online and shared views and thoughts

within the digital environment (Bagozzi and Dholakia 2002; Koh and Kim 2003; Sun et al. 2012; Williams and Cothrel 2000). Because of the affections and social objectives of people who joined virtual communities, virtual community members have been relatively sensitive toward their use of online networking tools, thus facilitating them to establish trust on other members.

Regarding the influencing factor of information sharing behaviour, information acquisition intentions are the primary reason virtual community members use SNSs. Thus, members do not actively share information based on a desire to reciprocally share information; rather, they simply search for information in communities. Consequently, although people trust how their personal information is managed, or trust their virtual community friends and believe that their interaction in the community is based on benevolence and honesty, they do not share information based on the affective factor of reciprocity. Only members who actively provide information would share information, which demonstrates the relative rationality of virtual community members.

Online communication and information transfers lack face-to-face interactions; therefore, trust is an indispensable factor during the process of reducing uncertainty and enhancing trust (Lin 2008; Yu et al. 2010). According to studies regarding online information sharing, trust enables the formation of interpersonal relationships and facilitates effective knowledge creation and personal network sharing (Chai and Kim 2010). Furthermore, community members tend to avoid contributing knowledge to avoid receiving criticism or misleading others. From the professional community perspective, strong trust must be established before people can generate knowledge-sharing intentions, thus further strengthening the concept that trust is the key element in sharing knowledge between participants (Hsu et al. 2007; Wu and Sukoco 2010). Therefore, developing trust in virtual communities is critical. However, this study empirically showed that modern online users must not only build trust, they must also develop the desire to give information, which can be induced through trust or other factors, to elicit information sharing behaviour in virtual communities. Consequently, virtual community managers must focus on developing a method by which they can employ incentives or induce spontaneous behaviours to elicit the desire of virtual community members to provide information.

Based on the tremendous number of Facebook users, this result suggests that the massive potential for gaining profit and creating value should not be underestimated. For example, among the numerous functions available on Facebook, several functions enable companies to place their advertisements on the right side of the webpage to attract user attention and thereby increase firm product exposure rates. In addition, consumers exhibit the sharing behaviour when browsing their personal or friend profiles facilitate the transmission of product information. Nevertheless, whether promoting consumers to increase their website use or transmit information, these behaviours increase company profitability through the social network website. Thus, companies should target different users and elicit community member information sharing behaviour to transmit firm product information and produce valuable business opportunities.

5.3 Limitations and future research directions

This study had several limitations. First, the results indicated that each construct was not associated with influencing factors. Future studies should consider other social factors, information security problems, or virtual community consciousness issues when discussing trust formation. Second, other than Facebook, MySpace, Twitter, and Google+ are recent successful social networking platforms. Using other SNSs to form a study matrix might yield different results. Third, all participants involved in this study were Facebook users in Taiwan aged between 16 and 25 years. However, user age could result in research deviations. We suggest that future investigations use age as a control variable, or widely distribute questionnaires and employ a wide age distribution to obtain objective analysis results.

This study constructed a research model to verify the proposed hypotheses. The research framework focused on discussing varying dimensions of trust and intention, providing a detailed analysis on previous studies. Furthermore, this study investigated the mediating effects of the desire to give information on the relationship between trust on website or trust on member and information sharing behaviour. In addition, Facebook was used as a case study to demonstrate the necessity of concurrently analyzing trust on website and on member and the desires to get and give information. By analyzing the formation process of information sharing behaviour, this study verified that the desire to give information were mediators, which influenced the relationship between trust on website/member and information sharing behaviour. Finally, this study used the Internet survey which easily raised the problem of sample representativeness and response rate. This study adopted the Internet sample and might cause the restrictions on inferences of results.

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