Participation in Open Knowledge-Sharing Community: Expectancy Value Perspective

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Abstract. The success of open knowledge sharing community requires individuals to involve in and make continuous commitment to it. The aim of this study is to develop an integrated understanding of the factors that influence individuals' open knowledge sharing community involvement and continuous commitment. We employed the expectancy-value theory as our theoretical basis, and proposed that knowledge sharing expectancy, knowledge sharing value, and knowledge sharing affect characterized by six motivational constructs influence individuals' community involvement and continuous commitment. We conduct a survey to collect data and validate the research model. Our findings contribute to the understanding of knowledge-sharing community success and augment the research on digital services for knowledge sharing in the open communities.

Keywords: Expectancy value theory · Open knowledge sharing community · Expectancy · Value · Affect

1 Introduction

Open knowledge-sharing communities (OKSCs) as a typical type of virtual communities are developed to facilitate open discussion and promote knowledge sharing. OKSC is a group of people who share knowledge, develop relationships, and attain certain goals individually or collectively in an information technology-supported context (Ma and Agarwal 2007). One famous example here is the stackoverflow.com, which has attracted millions of programmers to share their knowledge by asking questions and posting answers. To attract participants, various mechanisms are designed to encourage OKSC participation and knowledge sharing (Kang 2011). For instance, badge system in stackoverflow.com is developed to reward the active participants. However, it is no guarantee that the community will be successful. Despite the proliferation of OKSCs, the factors leading to their success are still unclear.

Prior studies on knowledge sharing communities took the perspective of knowledge contributors and were mainly focused on knowledge contribution and its antecedents (Kim et al. 2011; Ma and Agarwal 2007; Wasko and Faraj 2005). However, OKSCs

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involve not only knowledge contributors, but also knowledge seekers and other participants (Chen and Hung 2010). All roles are critical to fostering OKSC success. Rather than only focusing on knowledge contributors, this study investigates individuals' knowledge sharing behaviors - OKSC involvement and OKSC continuous commitment - which involve both knowledge contributors and knowledge seerks. As indicated in prior studies, there is a belief that involvement and commitment are important issues for virtual community success (Chang and Chuang 2011) by fostering better membership relationships and improving community development, growth and survival (Ma and Agarwal 2007).

To design effective strategies to enhance OKSC involvement and continuous commitment, it is first necessary to find out the factors relating to involvement and continuous commitment. Some theoretical perspectives have been taken to explain individuals' behaviors in knowledge sharing communities, including cost-benefit framework (Bock et al. 2005; Kankanhalli et al. 2005; Wasko and Faraj 2005), social capital perspective (Chiu et al. 2006; Wasko and Faraj 2005), social network perspective (Chow and Chan 2008; Wasko and Faraj 2005), organizational climate (Bock et al. 2005), incentive systems (Bock et al. 2005; Kankanhalli et al. 2005). These perspectives were more rationality-driven in explaining individuals' behaviors. Although knowledge sharing researchers emphasized rational motivations, the importance of irrational factors, such as emotions, should not be ignored. However, scant research, of which we are aware, have investigated emotional factors in the study of knowledge sharing.

Both rational and irrational motivational factors are examined in this study. We adopt the expectancy-value theory (EVT) to identify six motivational constructs that belong to knowledge sharing expectancy, knowledge sharing value and knowledge sharing affect and examine their relationships with OKSC involvement and continuous commitment. The research model is tested using the data collected by survey.

2 Theoretical Foundation

Expectancy-value theory (EVT) is a basic paradigm for understanding individuals' motivations and behaviors (Liu and Liu 2011). It describes the cognitive-motivational process in attaining a goal (Liu and Liu 2011). Adopting EVT to explain individuals' behavior, three motivational components were identified – expectancy, value, and affective components (Pintrich and De Groot 1990). The three motivational components identified by EVT include both rational and irrational factors. EVT provides a good theoretical perspective to explain why individuals are motiveted to involve in and continuously commit to OKSC.

EVT supports that expectancy component is a good predictor of behavior (Liu and Liu 2011). Expectancy has been conceptualized in two forms: efficacy expectancy and outcome expectancy (Chiu et al. 2006). Efficacy expectancy is the belief about one's competence to perform the behavior successfully, while outcome expectancy is the belief that one's behavior will lead to certain outcomes (Chiu et al. 2006). The expectancy of a good outcome does not mean that an individual has the ability to perform the behavior, and vice versus (Eccles and Wigfield 2002). Efficacy expectancy and outcome

expectancy are regarded as major determinants of one's willingness to expend effort and be engaged in a behavior (Liu and Liu 2011). In this study, we conceptualize knowledge sharing expectancy as an efficacy expectancy to perform knowledge sharing behavior and an outcome expectancy to produce good outcomes. As an efficacy expectancy, knowledge sharing self-efficacy is defined as an individual's confidence in one's competence to share valuable knowledge with others in the same virtual community (Chen and Hung 2010). Perceived compatibility is defined as an individual's cognition of likely value, need and experience that one's behavior in knowledge sharing community is similar to the original value system (Chen and Hung 2010). Individuals in online community want to build reputations, and develop social relationships (Ma and Agarwal 2007). Compatibility with the community value system is the outcome being pursued. As such, we regard perceived compatibility as one type of outcome expectancy. Thus, knowledge sharing expectancy includes two constructs: knowledge sharing self-efficacy and perceived compatibility.

Value component in EVT refers to an individual's perception of the value and interest of performing a behavior (Miltiadou and Savenye 2003). It deals with individuals' reasons for doing a task (Eccles and Wigfield 2002). Knowledge sharing value is conceptualized as that individuals perform knowledge-sharing behavior for the sake of the values and interests they can derive from knowledge sharing. It explains individuals' reasons for conducting knowledge sharing. Two reasons are highlighted: desire for self-presentation, and perceived relative advantage. Desire for self-presentation is defined as the extent to which individuals want to present their images in OKSC (Kim et al. 2012). Drawing on identity theories, individuals are more likely to conduct tasks that allow them to present their self-images. Perceived relative advantage refers to individuals' cognitions about the advantages and benefits brought by knowledge sharing behavior (Chen and Hung 2010). Pursuing benefits and advantages is also an important reason for individuals' participation in OKSC.

Affective component in EVT concerns individuals' affective or emotional reactions to perform certain behaviors (Pintrich and De Groot 1990). It deals with "How do I feel about the behavior?" Knowledge sharing affect is conceptualized as forward-looking affective reactions where individuals imagine the emotional consequences of conducting or not conducting knowledge sharing behavior (Tsai and Bagozzi 2014). Model of goal-directed behavior suggests that anticipated emotions as an important affective component are significant determinants of individuals' behavior (Perugini and Bagozzi 2001). Anticipated emotions are reflected by positive and negative anticipated emotion (Tsai and Bagozzi 2014).

3 Research Model and Hypotheses Development

The research model is developed based on the expectancy-value theory and knowledge sharing literature. As shown in Fig. 1, we specify that individuals' knowledge sharing expectancy, knowledge sharing value and knowledge sharing affect are reflective second-order factors and they influence individuals' OKSC involvement and continuous commitment.

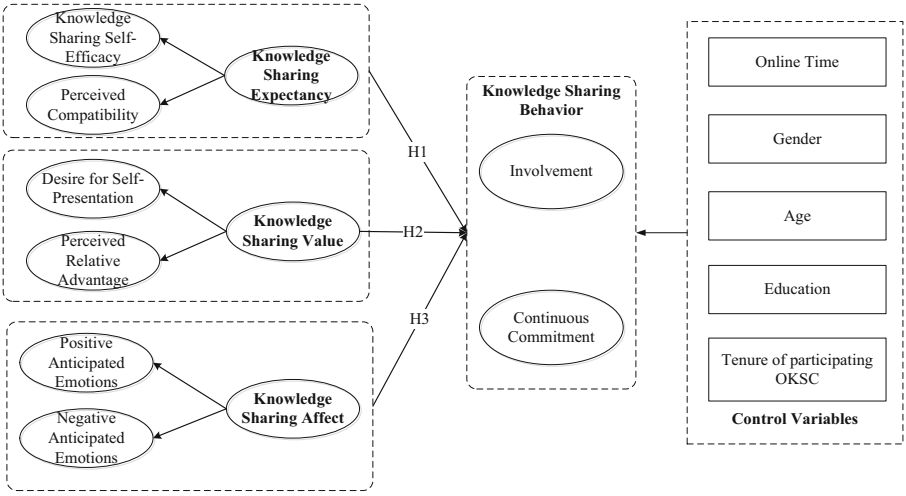

Fig. 1. The Proposed Research Model

3.1 Knowledge Sharing Expectancy

Knowledge sharing self-efficacy reflects how well individuals believe that they can perform knowledge sharing successfully (Ray et al. 2014). It is suggested as a key motivational factor that drives individuals' knowledge sharing decisions and behaviors (Chen and Hung 2010; Kankanhalli et al. 2005; Ray et al. 2014). The willingness to involve in the community is largely dependent on one's confidence in performing it well (Rich et al. 2010). High self-efficacious members tend to be more self-motivated (Bock et al. 2005), and they are more willing to involve in community activities and be responsive to others' inquiry (Ray et al. 2014). In contrast, low self-efficacious members are fearful of acting wrongly (Ardichvili et al. 2003), so they are likely to withdraw from the community activities when difficulties are encountered (Kankanhalli et al. 2005). Thus, we suppose a positive relationship between knowledge sharing self-efficacy and OKSC involvement.

Knowledge sharing self-efficacy is also an important factor that influences individuals' continuous community commitment. First, besides an ability evaluation, self-efficacy also reflects an inherent desire for mastery (Bandura 1993). Individuals invest time and effort to foster their efficacy in the online community, and the time and effort become sunk cost if they leave the community. They are likely to stay in the community when sunk cost is high (Polites and Karahanna 2012). Second, as high self-efficacious members own much knowledge about the community, they have the desire to maintain cognitive consistency (Polites and Karahanna 2012). Thus, they tend to main their status quo through continuously commit to the present online community. Third, by virtue of self-efficacy, individuals gain positive experience from successful knowledge sharing, which may enhance their continuous commitment.

The second expectancy factor – perceived compatibility is also expected to be associated with OKSC involvement and continuous commitment. Compatibility is the

congruency between one's behavior and the value system (Chen and Hung 2010). Individuals are motivated to participate by the expectation to be in congruity with their value systems (Lin et al. 2009). Once the compatibility is perceived to be high, individuals become comfortable with the OKSC, and they increase their involvement and commitment (Lin et al. 2009). In OKSC, individuals depend on the platform to share knowledge and derive value (Ray et al. 2014). And the amount of value they expect to obtain is partly determined by the perceived compatibility. Perceived compatibility is also considered as a psychological barrier (Budman 2003). Once individuals' cognitions and behavior are incompatible with the community value, they may face the risk of being criticized which undermines their involvement and psychological attachment.

H-1a: Knowledge sharing Expectancy in OKSC, reflecting by knowledge sharing self-efficacy and perceived compatibility, is positively related to individuals' OKSC involvement.
H-1b: Knowledge sharing Expectancy in OKSC, reflecting by knowledge sharing self-efficacy and perceived compatibility, is positively related to individuals' OKSC continuous commitment.

3.2 Knowledge Sharing Value

Knowledge sharing value includes desire for self-presentation and perceived relative advantage. The two factors explain why individuals engage in knowledge sharing. The development of internet technology offers opportunities for individuals to present themselves through digital channels (Kim et al. 2011). Individuals are willing to participate in the OKSC when they can express and present themselves (Ma and Agarwal 2007). We anticipate that desire for self-presentation influences individuals' OKSC involvement and continuous commitment. First, it is important that members achieve a shared understanding in OKSC. By presenting one's self-identity, individuals can be understood and accepted by other members. The acceptance and acknowledgement from other members can increase one's intention to get involved and stay in the community. Second, the revelation of similar interests and experiences resulting from self-presentation facilitates relationship building. Individuals are more willing to participate in relationships and continue the relationships when their identities can be presented, and social relationships built in OKSC can promote community persistence (Ma and Agarwal 2007). Third, Individuals can present a desired self through how they behave (Kim et al. 2012). The involvement and commitment in OKSC is seen as an act of self-presentation that can express one's preferred identity to others (Ray et al. 2014). Individuals involve in and commit to OKSC not only because of altruism, but also for reputation (Wasko and Faraj 2005) and self-esteem (Bock et al. 2005). Efficient identity presentation is encouraged by reputation system. When community members want to build good reputation, they involve in helping behavior, and make commitment to OKSC.

Perceived relative advantage is a multidimensional construct and it is mainly manifested as increased efficiency and effectiveness, economic benefits, and enhanced status (Lin et al. 2009). Prior studies suggested that individuals participate in virtual community in hope of enriching their knowledge, seeking support, making friends, or

being seen as skilled, knowledgeable and respected (Lin et al. 2009). When potential benefits are expected to generate as a result of community participation, individuals are more willing to invest effort and time to the community. Furthermore, the lack of formal obligations in OKSC means that community participation is voluntary (Ray et al. 2014). As OKSC members are anonymous and distant from each other, the normative pressure is less than that in offline communities (Ray et al. 2014). The knowledge acquisition and relationship building are of significance in motivating OKSC involvement. Continuous commitment occurs as one weighs the benefits associated with staying in a community against the costs of leaving (Teunissen et al. 2009). When the perceived relative advantage is high, the cost of leaving is high. In contrast, if individuals see no advantages, they won't get involved and make commitment to it. In this sense, perceived relative advantage is a necessary condition for OKSC involvement and continuous commitment.

H-2a: Knowledge sharing Value in OKSC, reflecting by desire for self-presentation, perceived relative advantage, is positively related to individuals' OKSC involvement.
H-2b: Knowledge sharing Value in OKSC, reflecting by desire for self-presentation, perceived relative advantage, is positively related to individuals' OKSC continuous commitment.

3.3 Knowledge Sharing Affect

In addition to expectancy and value component of motivation, knowledge sharing affect is also an important motivational factor in driving OKSC involvement and continuous commitment. Knowledge sharing affect is reflected by anticipated emotions, which are expected emotional consequences of participating or not participating in OKSC (Perugini and Bagozzi 2001). An individual usually expects a good or bad result before making a decision, and positive and negative anticipated emotions are invoked as a result of the expectations (Tsai and Bagozzi 2014). Positive anticipated emotions are evoked when individuals imagine desired outcomes if they participate in the community, while negative anticipated emotions are evoked when individuals expect undesired outcomes if they fail to participate in the community (Baumgartner et al. 2008). As Taylor and Pham put it, the emotions one anticipates provide the fuel for taking further actions (Taylor 1991). Perugini and Bagozzi (2001) added anticipated emotions to the theory of planned behavior and found that both positive and negative anticipated emotions are significant antecedents of individuals desires and behaviors (Perugini and Bagozzi 2001).

Individuals have the tendency to pursue positive emotions and avoid negative emotions, which is believed to be significant sources of decision making (Zeelenberg 1999). If individuals are aware that participating in OKSC can lead to positive emotions afterward, they will be more likely to participate. Positive anticipated emotions transmits the signal that the environment is unproblematic and safe, which enables individuals to freely participate in community activities, share their knowledge, and seek for knowledge without being criticized (George and Zhou 2007). Moreover, when the community

is believed to be safe, individuals are comfortable to get involve and willing to stay in it in the future (Loi et al. 2006).

Negative anticipated emotions are also powerful in predicting individuals' behaviors (Baumgartner et al. 2008). When individuals experience failure in OKSC participation, the negative anticipated emotions related to psychological effects of worry may arise (Zeelenberg 1999). The worry drives individuals to taken relevant actions (Baumgartner et al. 2008). As a result, individuals involve in OKSC to release the worry. Since negative emotions are usually intense, more effort is needed to committed to the community (Taylor 1991). For example, an individual who plans to pass an exam imagines having been unsuccessful in passing it. The anticipated negative emotions resulting from the likely failure may stimulate a hard-working behavior to pass the exam as people have the tendency to avoid failure (Zeelenberg 1999). In addition, negative anticipated emotions are associated with affective cost of not being community members (Astrachan and Jaskiewicz 2008). The affective cost thus plays as a barrier for members to get out of the community.

H-3a: Knowledge sharing Affect in OKSC, reflecting by positive anticipated emotions and negative anticipated emotions, is positively related to individuals' OKSC involvement.
H-3b: Knowledge sharing Affect in OKSC, reflecting by positive anticipated emotions and negative anticipated emotions, is positively related to individuals' OKSC continuous commitment.

4 Research Methodology

Our sample was obtained from several major OKSCs in Mainland China, including zhidao.baidu.com, zhihu.com, csdn.com, and others. These OKSCs enable users to ask questions and post answers in the form of discussion thread. Because of page limitation, we cannot comprehensively explain all details here. The PLS results for the structural model are illustrated in Fig. 2, in which knowledge sharing expectancy, knowledge sharing value, and knowledge sharing affect generally significantly improve participants' knowledge sharing behavior in OKSC.

5 Discussion

Despite the rapid development of knowledge sharing communities beyond organizational boundary, a theory relating both rational and irrational factors to knowledge sharing behaviors is lacking. To fill this gap, we proposed a second-order-factor research model by extending the expectancy-value theory to the OKSC context. Six constructs belonging to knowledge sharing expectancy, knowledge sharing value, and knowledge sharing affect were identified as first-order factors. Using a survey to collect data, we found that knowledge sharing expectancy, knowledge sharing value and knowledge sharing affect are good predictors of individuals' knowledge sharing behaviors.

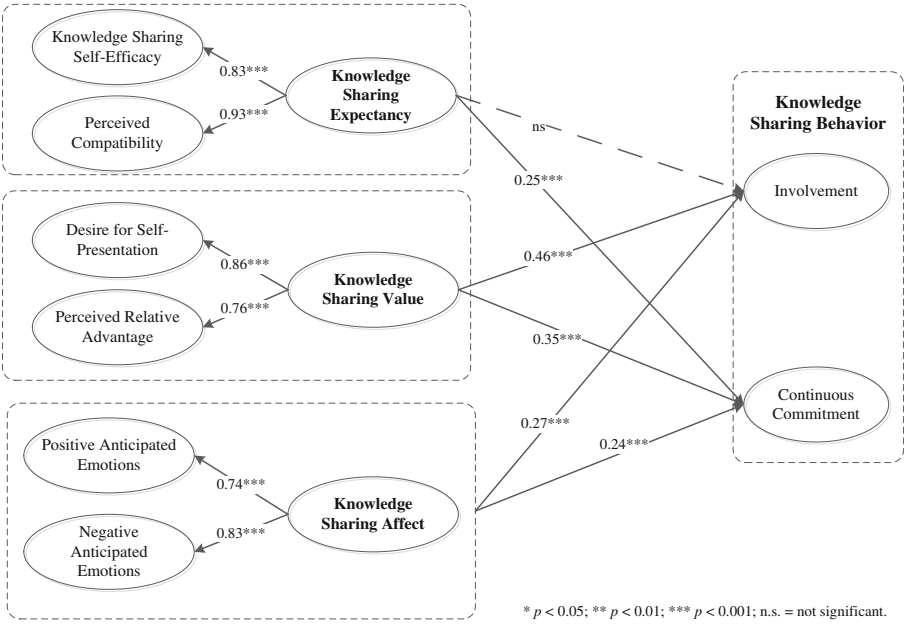

Fig. 2. Results of PLS analysis

This study has both theoretical and practical implications. From a theoretical perspective, this study empirically supports that both rational and irrational factors should be considered when studying online knowledge sharing. From a practical perspective, this study offers insights to the success of virtual communities. To enhance the development of virtual communities, participants' knowledge sharing expectancy, knowledge sharing value, and knowledge sharing affect should be well fostered.

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References

Ardichvili, A., Page, V., Wentling, T.: Motivation and barriers to participation in virtual knowledge-sharing communities of practice. J. knowl. Manag. **7**(1), 64–77 (2003)

Astrachan, J.H., Jaskiewicz, P.: Emotional returns and emotional costs in privately held family businesses: advancing traditional business valuation. Fam. Bus. Rev. **21**(2), 139–149 (2008)

Bandura, A.: Perceived self-efficacy in cognitive development and functioning. Educ. Psychol. **28**(2), 117–148 (1993)

Baumgartner, H., Pieters, R., Bagozzi, R.P.: Future-oriented emotions: conceptualization and behavioral effects. Eur. J. Soc. Psychol. **38**(4), 685–696 (2008)

Bock, G.-W., Zmud, R.W., Kim, Y.-G., Lee, J.-N.: Behavioral intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. MIS Q., 87–111 (2005)

Budman, M.: Internet life: what your customers are doing online. Across Board **40**(1), 59–60 (2003)

Chang, H.H., Chuang, S.S.: Social capital and individual motivations on knowledge sharing: participant involvement as a moderator. Inf. Manag. **48**(1), 9–18 (2011)

Chen, C.J., Hung, S.W.: To give or to receive? Factors influencing members' knowledge sharing and community promotion in professional virtual communities. Inf. Manag. **47**(4), 226–236 (2010)

Chiu, C.M., Hsu, M.H., Wang, E.T.G.: Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories. Decis. Support Syst. **42**(3), 1872–1888 (2006)

Chow, W.S., Chan, L.S.: Social network, social trust and shared goals in organizational knowledge sharing. Inf. Manag. **45**(7), 458–465 (2008)

Eccles, J.S., Wigfield, A.: Motivational beliefs, values, and goals. Ann. Rev. Psychol. **53**(1), 109–132 (2002)

George, J.M., Zhou, J.: Dual tuning in a supportive context: joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. Acad. Manag. J. **50**(3), 605–622 (2007)

Kang, J.: Social media marketing in the hospitality industry: the role of benefits in increasing brand community participation and the impact of participation on consumer trust and commitment toward hotel and restaurant brands (2011)

Kankanhalli, A., Tan, B.C.Y., Wei, K.K.: Contributing knowledge to electronic knowledge repositories: an empirical investigation. MIS Q., 113–143 (2005)

Kim, H.-W., Chan, H.C., Kankanhalli, A.: What motivates people to purchase digital items on virtual community websites? The desire for online self-presentation. Inf. Syst. Res. **23**(4), 1232–1245 (2012)

Kim, H.-W., Zheng, J.R., Gupta, S.: Examining knowledge contribution from the perspective of an online identity in blogging communities. Comput. Hum. Behav. **27**(5), 1760–1770 (2011)

Lin, M.-J.J., Hung, S.-W., Chen, C.-J.: Fostering the determinants of knowledge sharing in professional virtual communities. Comput. Hum. Behav. **25**(4), 929–939 (2009)

Liu, N.-C., Liu, M.-S.: Human resource practices and individual knowledge-sharing behavior–an empirical study for Taiwanese R&D professionals. Int. J. Hum. Resource Manag. **22**(04), 981–997 (2011)

Loi, R., Hang-Yue, N., Foley, S.: Linking employees' justice perceptions to organizational commitment and intention to leave: the mediating role of perceived organizational support. J. Occup. Organ. Psychol. **79**(1), 101–120 (2006)

Ma, M., Agarwal, R.: Through a glass darkly: information technology design, identity verification, and knowledge contribution in online communities. Inf. Syst. Res. **18**(1), 42–67 (2007)

Miltiadou, M., Savenye, W.C.: Applying social cognitive constructs of motivation to enhance student success in online distance education. AACE J. **11**(1), 78–95 (2003)

Perugini, M., Bagozzi, R.P.: The role of desires and anticipated emotions in goal-directed behaviours: broadening and deepening the theory of planned behaviour. Brit. J. Soc. Psychol. **40**, 79 (2001)

Pintrich, P.R., De Groot, E.V.: Motivational and self-regulated learning components of classroom academic performance. J. Educ. Psychol. **82**, 33 (1990)

Polites, G.L., Karahanna, E.: Shackled to the status quo: the inhibiting effects of incumbent system habit, switching costs, and inertia on new system acceptance. MIS Q. **36**(1), 21–42 (2012)

Ray, S., Kim, S.S., Morris, J.G.: The central role of engagement in online communities. Inf. Syst. Res. **25**(3), 528–546 (2014)

Rich, B.L., Lepine, J.A., Crawford, E.R.: Job engagement: antecedents and effects on job performance. Acad. Manag. J. **53**(3), 617–635 (2010)

Taylor, S.E.: Asymmetrical effects of positive and negative events: the mobilization-minimization hypothesis. Psychol. Bull. **110**(1), 67–85 (1991)

Teunissen, P.W., Stapel, D.A., van der Vleuten, C., Scherpbier, A., Boor, K., Scheele, F.: Who wants feedback? An investigation of the variables influencing residents' feedback-seeking behavior in relation to night shifts. Acad. Med. **84**(7), 910–917 (2009)

Tsai, H.-T., Bagozzi, R.P.: Contribution behavior in virtual communities: cognitive, emotional and social influences. MIS Q. **38**(1), 143–163 (2014)

Wasko, M.M.L., Faraj, S.: Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. MIS Q. **29**, 35–57 (2005)

Zeelenberg, M.: Anticipated regret, expected feedback and behavioral decision making. J. Behav. Decis. Making **12**(2), 93 (1999)