



Understanding sustained participation in transactional virtual communities

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ABSTRACT

This study aims to address two research gaps in prior studies on knowledge sharing in virtual communities (VCs). First, prior studies have focused on knowledge sharing VCs with no explicit reward system, but VCs sharing knowledge based on a competition-based reward system (e.g., transactional VCs) have not been explored. Second, prior related studies have concentrated on the determinants of initial participation in sharing knowledge rather than sustained participation despite there being important distinctions between these two stages of participation behavior. In this study, we focus on understanding sustained participation in knowledge sharing in transactional VCs by drawing on expectancy-value theory and a social learning process. Considering that a social learning process is involved in maintaining sustained participation, we propose that task complexity and self-efficacy – two social learning factors – moderate the relationship between motivation and sustained participation. A field survey with 205 subjects in a transactional virtual community was conducted to test the research model. According to the findings, extrinsic and intrinsic motivations significantly influence sustained participation intention. A negative interaction effect between extrinsic motivation and task complexity, as well as positive interaction effect between intrinsic motivation and self-efficacy, was also observed. A non-linear interaction effect between intrinsic motivation and task complexity was also found. Study implications and future research directions are also discussed.

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1. Introduction

Virtual communities (VCs) as an important Internet-based platform to facilitate knowledge sharing among individuals have been widely discussed in information systems (IS) research¹ [11,14,35,41,76]. Knowledge contributors in VCs share their knowledge with others based on a mechanism of “gift-giving” [9,49] or reciprocity [76]. However, as knowledge provided by participants is deemed to be a public good [76] that is free to all, no economic value is generated. This serves as an impetus for researchers and practitioners to explore a new VC business model to extract economic value from shared knowledge [6,7,43].

Since 2005, a new form of virtual community supporting the realization of economic value has emerged and rapidly developed worldwide. Popular applications include Amazon's Mechanical Turk and myTino.com in the USA, as well as Taskcn.com and Witkey.com in China. In these VCs, knowledge seekers post tasks and extend certain

monetary compensations in sourcing others' knowledge to resolve problems, while problem solvers participate in these tasks and compete with other solvers to earn monetary rewards (a business model also often called crowdsourcing [33,80,81]). In other words, unlike knowledge sharing in previous VCs, knowledge contributors in these VCs leverage their knowledge to gain payment through a competition-based reward system. Since knowledge exchange in this context is considered a transaction, this new type of VC is termed as a transactional virtual community (TVC). In contrast, we term the previous type of VC with an emphasis on relational or social exchange as relational virtual community (RVC) [76]. It is worth noting that while there are several other ways to extract economic value from virtual communities as discussed in previous literature, such as e-commerce communities and viral marketing [6,7,43], our study focuses on the TVC in which economic value is extracted through *knowledge exchange* or *knowledge-based problem solving* [52].

This new application has achieved enormous success over the past several years. For example, over 20 websites have adopted this business model in China. A typical website, Taskcn.com, currently has over 2.8 million solvers, over 39,000 tasks, and over 4 million US dollars in task reward.² Likewise, over 178,000 knowledge-sourcing requests, human intellectual tasks in their terms, have been posted on Amazon's Mechanical Turk.³

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¹ It is worth noting that in this study public virtual community is taken as the general background for the classification of virtual communities [83]. Organizational virtual community, which is only open for members in a particular organization, is not included in the discussion.

² <http://www.taskcn.com>, accessed in January 2011.

³ <http://www.mturk.com/mturk/welcome>, accessed in January 2011.

The immense business potential of this new form of VC has urged both scholars and practitioners to consider how it could be sustained. Since the existence and sustainment of VCs rely heavily on ongoing participation of knowledge contributors who share their expertise [23,62], their continuous participation in knowledge sharing becomes a critical success factor. However, the turnover rate of solvers remains a significant challenge for the survival of TVCs. As numerous solvers compete to gain the rewards yet a mere handful could win in the end, those who frequently lose in the competition may leave the TVC websites. For example, Taskcn.com has over 2.8 million registered members, but a mere 0.24 million (less than 10%) gain income through continued participation in online tasks. Furthermore, active solvers only occupy a minimal part of the total number of solvers. Therefore, understanding the factors that influence solvers' sustained sharing behavior in TVCs is critical. This goal constitutes the objective of the present study.

Prior related studies have identified that extrinsic and intrinsic motivations are important factors leading to initial participation in knowledge sharing in VCs [14,16,35,76]. In understanding sustained participation in TVCs, the present study builds on and exceeds these findings by presenting two important theoretical distinctions. First, this study focuses on knowledge sharing in the TVC, a new form of VC that facilitates knowledge sharing through a competition-based reward system, which is in contrast to previously studied organizational settings or VCs with no explicit reward systems. Second, this study addresses the issue of maintaining sustained participation, rather than initial participation, in knowledge sharing. Factors depicted as being important for initial participation may be inadequate to explain sustained participation. In fact, research in other virtual community settings has suggested that the strength of initial motivations may change over time. In particular, initial motivations may not always be strong enough to sustain participation [23]. This implies the existence of moderating factors between initial motivations and participation.

To address these two theoretical distinctions, an innovative approach that integrates the social learning process into expectancy-value theory (EVT) is used. Drawing on the EVT [75], motivational factors, which refer to extrinsic and intrinsic benefits gained through participation in online tasks, are framed as value perceptions to predict participation behavior [65,66]. Expectancy perceptions, which reflect the probability to achieve the intended outcome, serve as the moderator between value perceptions and participation behavior. Solvers are theorized to renew their expectancy perceptions of the complexity of the task (e.g., task complexity) and their ability to complete it (e.g., self-efficacy) in the continued participation stage through social learning process [79]. In this paper, it is argued that this perception reconstruction process may alter the explanatory mechanisms through which motivational factors influence participation behavior.

This study contributes to the theoretical understanding of sustained participation in TVC in several important ways. First, existing findings with respect to the role of intrinsic versus extrinsic motivations in affecting knowledge sharing in RVC are extended to the context of TVC by identifying the important distinctions between the two types of communities. These distinctions provide insights into the differential effect of these motivations on knowledge sharing behavior in the TVC context. Second, integrating EVT and the notion of social learning, this study contributes to motivation literature by theorizing and empirically verifying the moderating role of expectancy perceptions on the relationship between motivations and sustained participation behavior.

2. Theoretical background

2.1. Knowledge sharing in virtual communities

A virtual community is defined by Porter [58] as “an aggregation of individuals or business partners who interact around a shared interest, where the interaction is at least supported and/or mediated by technology and guided by some protocols or norms.” Virtual communities

have long been understood, as well as practiced, as an Internet-based space for socialization [61], where “social aggregations ... emerge from the Net when enough people carry on those public discussion long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” [61]. As virtual communities of this type exist to facilitate the exchanges and interactions that bring value to members and form relationships with other members, they are termed relational virtual communities (RVCs), where knowledge sharing activities are driven by a social norm (e.g., reciprocity), and knowledge is treated as a public good that is free to all members [76].

The majority of prior studies on knowledge sharing in virtual communities have focused on the motives of *initial participation in relational virtual communities*. As shown in Table 1, the factors associated with participation can be generally classified into two streams: personal motives and social motives. Personal motives can be further classified into extrinsic (e.g., extrinsic reward and reputation or image) and intrinsic motives (e.g., sense of self-worth, learning, and enjoyment in helping others) [65,66], whereas social motives include community advancement, social identity, reciprocity, and a sense of belonging. These prior studies offer a sound understanding of why people initially share their knowledge in the RVC context. Besides, there are a few previous studies on continued participation in RVC [30,83] and initial participation in TVC [21,44]. However, previous research on continued participation in RVC focuses on the role of satisfaction and habit [30] from the information systems continuance perspective [10] rather than from the motivational perspective. The previous research on participation in the TVC context is still at its infancy stage, focusing on conceptual modeling or design issues [21,44]. Knowledge on the sustained participation in the TVC context from the motivational perspective is lacking. Thus, it is imperative to (1) learn the extent to which important factors in the RVC context remain applicable in the TVC context, and (2) identify influencing factors that are distinctive to the context of sustained participation. Next, distinctions between RVCs and TVCs and between initial participation and sustained participation are discussed.

2.2. Transactional virtual community versus relational virtual community

Recently, researchers have transcended the social view of virtual communities by conceptualizing virtual communities as a business model [28,43], on the premise that information and knowledge shared by solvers can create actual economic value [43]. Unlike prior VC which relies heavily on social relationships for knowledge sharing, this new form of VC takes knowledge sharing as a transaction. To further address this distinction, we define prior knowledge sharing VC, which treats knowledge sharing as a social activity, as RVC (e.g., Wikipedia and Yahoo! Answers). On the other hand, we define the new form of VC that stresses the transactional nature of knowledge sharing as being a transactional virtual community (TVC) (e.g.,

Table 1
Motives to share knowledge in virtual communities.

Motives			Related literature
Personal motives	Extrinsic motives	Extrinsic reward	[14,16,19,35,76]
		Reputation/image	[16,19,35,42,77]
	Intrinsic motives	Sense of self worth	[16,19,31,35,42,48,76]
		Learning	[16,29,76]
		Enjoyment in helping others	[76,77]
Social motives	Community advancement		[14,35,76]
	Social identity		[12,19,53]
	Reciprocity		[4,14,29,42,45,76,77]
	Sense of belonging		[12,14,16,42,46,47,53,73,77]

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