



# Understanding knowledge contributors' satisfaction in transactional virtual communities: A cost–benefit trade-off perspective



Yongqiang Sun<sup>a</sup>, Yulin Fang<sup>b,\*</sup>, Kai H. Lim<sup>b</sup>

<sup>a</sup> School of Information Management, Wuhan University, China

<sup>b</sup> Department of Information Systems, City University of Hong Kong, Hong Kong

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## ABSTRACT

This study investigates knowledge contributors' satisfaction with a distinct type of virtual communities (i.e., transactional virtual communities, TVCs), where knowledge sharing is guided mainly under the principle of economic exchange, and cost–benefit tradeoff is the primary motive for knowledge sharing. Drawing upon the goal attainment theory, we examine the effects of two types of benefits (i.e., extrinsic and intrinsic) and two types of costs (i.e., actual and opportunity) on knowledge contributors' satisfaction, and highlight the mediating role of perceived net goal attainment. A field survey with 205 subjects in a TVC in China is conducted to test the research model.

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## 1. Introduction

The Internet revolution, such as the emergence of Web 2.0, has led to the proliferation of virtual communities (VCs) worldwide [30]. The blossoming of these VCs enables knowledge and information exchange for mutual learning and problem solving without physical constraints [25,30,49,50]. The most commonly known VCs are professional virtual communities (PVCs) or virtual communities of practice (CoPs) [11,25], in which participants voluntarily share their knowledge with and acquire needed knowledge from others. However, the knowledge provided by participants in these VCs is taken as a public good that is free to all participants, and thus, it yields no economic value. A call for extracting economic value from knowledge shared within virtual communities has recently motivated practitioners to explore opportunities for capitalizing on this knowledge to realize that economic value [32].

Since 2005, a new form of virtual community that supports this transformation, which we call transactional virtual communities (TVCs) in our study, has emerged and rapidly developed worldwide. The most popular applications of TVCs include

Amazon's Mechanical Turk and myTino.com in the US and Taskcn.com and Witkey.com in China. We term these applications TVCs to highlight their distinct knowledge exchange models: instead of contributing free knowledge as in traditional VCs, participants in TVCs transact their knowledge for economic returns. In other words, knowledge seekers post tasks and provide certain monetary compensation for sourcing others' knowledge to complete those tasks. TVCs are sometimes also called Witkeys, connoting “the key of wisdom,” or crowdsourcing, connoting sourcing ideas from the crowd [23].

The business model of TVCs has achieved enormous success over the past years. For instance, more than 20 websites adopt this business model in China, and the scale and revenue of these websites are considerable. One typical website, Taskcn.com, already has more than 2.5 million participants, over 20,000 tasks, and over USD 3 million in task rewards.<sup>1</sup> Similarly, over 80,000 knowledge-sourcing requests, human intellectual tasks in their terms, have been posted on Amazon's Mechanical Turk.

The realization of the tremendous business potential of TVCs, however, hinges on the ongoing participation of their knowledge contributors (termed “solvers” in this special research context [51]). After all, the economic value of this community model will not be realized unless solvers continue to spend their time and

\* Corresponding author. Tel.: +852 34427492.

E-mail addresses: [syq@mail.ustc.edu.cn](mailto:syq@mail.ustc.edu.cn) (Y. Sun), [ylyfang@cityu.edu.hk](mailto:ylyfang@cityu.edu.hk) (Y. Fang), [iskl@cityu.edu.hk](mailto:iskl@cityu.edu.hk) (K.H. Lim).

<sup>1</sup> <http://www.taskcn.com/>.

effort contributing their knowledge to problem solving [15,43]. To ensure their ongoing participation, prior research suggests that it is critical to keep participants satisfied with their experience in VCs [35,36,46]. Given the criticality of satisfaction, our study aims to develop a better understanding of the factors that predict solver satisfaction with TVCs.

Participant satisfaction has been studied in traditional VCs primarily from a social, relational perspective [11,30] because knowledge is exchanged not based on monetary returns but for social, relational reasons (e.g., following the principle of social exchange) [11,48,49]. However, in TVCs, knowledge exchange is a transactional or commercial activity (rather than a social activity), and the exchange principle is highly economics-driven [5,18]. Thus, the social perspective used in the prior VC research may not be contextually justified to explain solver satisfaction in our TVC context. We must therefore seek a more contextually specific theoretical account that reflects the economic exchange principle that underlies TVC participation behavior to explain solver satisfaction.

To this end, we draw on goal attainment theory [7,29,42] to explain solver satisfaction in the TVC context by attributing satisfaction to a trade-off evaluation of benefits and costs with regard to knowledge-sharing behavior. Specifically, we identify two types of benefits (i.e., extrinsic and intrinsic benefits) and two types of costs (i.e., actual costs and opportunity costs) and incorporate the trade-off evaluation between them using a concept called perceived net gain attainment (PNGA).

Our study offers two important contributions to the field of VC research. First, we provide theoretical insights into the determinants of solver satisfaction in TVCs by drawing on goal attainment theory. Grounded in this theory, we highlight not only benefits but also cost concerns, particularly opportunity costs, as crucial factors in the TVC context. Second, with the inclusion of both benefits and costs in our theoretical model, we add to the literature by establishing the importance of PNGA as a trade-off between benefits and costs for solver satisfaction. Specifically, we stress that benefits cannot directly influence solver satisfaction but that together with costs, they can indirectly influence satisfaction through the full mediating effect of PNGA.

## 2. Theoretical background

### 2.1. Distinguishing transactional VCs from relational VCs

A VC refers to an aggregation of individuals who share information around a common interest; the sharing is supported and/or mediated by information technology and guided by certain protocols or norms [41]. We categorize VCs into relational (RVCs) and transactional (TVCs) according to the different protocols or norms guiding the knowledge sharing. RVCs, which have been the primary focus in prior VC research, treat knowledge as a public good that is free to all members of the VCs [48]. In accordance, knowledge sharing in RVCs is largely based on the principle of social rather than economic exchange. Guided by the social exchange protocol of knowledge sharing, prior studies on knowledge sharing in RVCs have heavily focused on social factors, such as community advancement [11,25,48], social identity [14,36], generalized reciprocity [11,26,48,49], and norms [11,14,26].

However, knowledge sharing in TVCs follows a different protocol. In TVCs, knowledge is treated as a private good and can be priced and exchanged in a transactional manner. Specifically, knowledge seekers who want to ask others for help in resolving certain problems post their tasks in TVCs and provide certain rewards (temporally kept by websites) for solvers. Solvers participate in these online tasks by submitting their work to the

websites. Seekers then choose as winners the solvers who offer solutions that best meet their requirements and ask the websites to pay monetary rewards to the winners. For each transaction, the websites will hold part of the total rewards as the service fee, for example, approximately 20% of the total rewards.

Given the distinctive nature of TVCs, the role of the economic calculus of benefits and costs should be recognized. More importantly, the knowledge contributors in RVCs, who may regard knowledge sharing as either a side product of private behavior [31] or an altruistic behavior [26,48], may thus pay less attention to cost issues [6,11,34]. However, in the TVC context, the goal of sharing knowledge becomes self-interest maximization. This implies that costs as an important decision factor for maximizing self-interest are no longer negligible. All of these ask for an alternative theoretical lens, preferably cost–benefit related, to analyze solver satisfaction with knowledge exchange in the TVC context.

### 2.2. Satisfaction with VCs and goal attainment theory

Participant satisfaction with VCs is a critical issue for VC research because it is closely associated with participants' continuous participation in VCs, which will determine their sustainability [15,43]. Although there have been studies on the antecedents of satisfaction in the RVC context, they may not be most appropriate to explain solver satisfaction in TVCs. For instance, some of the existing studies are based on a general research framework, such as the information system success model [13,35] or expectation confirmation theory [4,39] and are therefore too general to identify any context-specific antecedents of satisfaction in TVCs. Other studies investigate social factors, such as social identity [36], based on the social exchange principle and are therefore more relevant to the RVC than the TVC context. Context-specific explanations for solver satisfaction in the TVC context that reflect the economic exchange principle have not been developed. This drives us to search for a theory that can capture the economic exchange nature of the research context. To the extent that benefit and cost concerns are the basis of any economic exchange principles [5,18], we believe that goal attainment theory [7,29,42], which explicitly incorporates cost–benefit calculus, is a more appropriate theory for explaining satisfaction in TVCs.

Goal attainment theory was first developed by King [29] in the context of nursing. One central tenet of the theory is that people set certain goals, and the extent to which these goals are attained will determine their satisfaction. The theory was later applied and extended by Reinig [42] and by Briggs et al. [7] to information system research (see Fig. 1). They put forward perceived net goal attainment (PNGA) as a concept to capture the extent to which goals are attained and define it as “the degree to which one perceives that some object of satisfaction either advances or hinders the attainment of one’s salient individual goals” [7] (p. 588). Drawing on cost–benefit analysis, the theory further posits that perceived benefits can advance net goal attainment while perceived costs will hinder it. Therefore, PNGA, as an overall evaluation in terms of benefits and costs, is positively associated

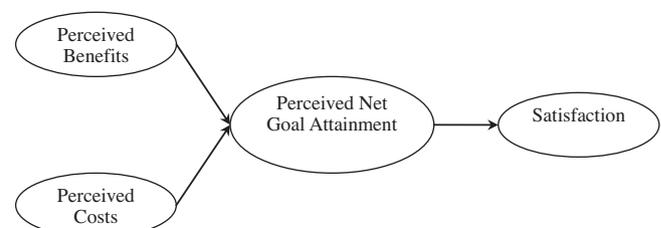


Fig. 1. Theoretical framework [29,30].

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