Determinants and Moderators of Knowledge Sharing Intention and Behavior in Virtual Communities: A Meta-Analysis Postprint

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Abstract

[Purpose/Significance] To address the inconsistency problem among empirical research results on factors influencing knowledge sharing intention and behavior in virtual communities, this study systematically reviews and re-analyzes relevant empirical studies in this domain. [Method/Process] Employing meta-analysis methodology, we systematically collected empirical research literature related to knowledge sharing intention and behavior in virtual communities, identified key influencing factors, and explored the sources of inconsistency across different studies through heterogeneity testing and subgroup analysis, thereby examining the effects of moderating variables. [Results/Conclusions] The findings reveal that 10 and 14 factors respectively exert significant positive influences on knowledge sharing intention and behavior. Altruism and knowledge sharing attitude demonstrate the strongest effects on knowledge sharing intention, while outcome expectations, common language, subjective norms, and identity are the most significant variables affecting knowledge sharing behavior. Furthermore, the study identifies community type and research context as partial sources of heterogeneity across studies, exerting certain moderating effects. By systematically identifying these influencing and moderating factors of knowledge sharing intention and behavior, this research provides valuable references for virtual community managers and establishes a stronger theoretical foundation for future studies in this field.

Full Text

A Meta-Analysis Research on Influencing Factors and Their Moderating Variables of Knowledge Sharing Intention and Behavior in Virtual Communities

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Abstract:
[Purpose/Significance] To address inconsistencies among existing empirical research findings on factors influencing knowledge sharing intention and behavior in virtual communities, this study systematically reviews and re-analyzes relevant empirical research in this field. [Method/Process] Using meta-analysis, the study systematically collected empirical research literature related to knowledge sharing intention and behavior in virtual communities, identified key factors affecting knowledge sharing intention and behavior, and explored the reasons for inconsistencies among different studies through heterogeneity testing and subgroup analysis to examine the influence of moderating variables. [Result/Conclusion] The study found that 10 and 14 variables respectively have significant positive effects on knowledge sharing intention and behavior. Among them, altruism and attitude toward knowledge sharing have the strongest influence on knowledge sharing intention, while outcome expectations, common language, subjective norms, and identity are the most significant variables affecting knowledge sharing behavior. Additionally, the study identified community type and research context as partial sources of heterogeneity across studies, exerting certain moderating effects. By identifying these influencing and moderating factors, this research provides references for virtual community managers and offers a better theoretical foundation for future research in this field.

Keywords: meta-analysis, knowledge sharing, knowledge contribution, knowledge management, virtual community, online community
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With the rapid development of the Internet and Web 2.0 technologies, various types of virtual communities continue to emerge, and increasingly more individuals actively participate in virtual communities to acquire, collect, contribute, or share knowledge to broaden their horizons and solve problems in work or daily life [1]. In recent years, research interest in factors influencing knowledge sharing intention and behavior in virtual communities has gradually increased [2]. Numerous empirical studies [3-4] have investigated and identified many factors affecting knowledge sharing intention and behavior in virtual communities. However, research indicates that the factors and their effect sizes differ across studies [5], making it difficult to theorize about knowledge sharing in virtual communities and hindering further development in this field.

Meta-analysis, as a tool for synthesizing results from different studies addressing

the same research question [6], is a statistical process that accumulates experimental and correlational results across independent studies [7]. It can measure common effect sizes by aggregating numerous studies, thereby contributing to generalizable knowledge [8]. Research has also proposed that meta-analysis has broad prospects as a research method in library and information science [9]. Therefore, it is necessary to use meta-analysis to systematically review existing empirical research, which can both systematically identify factors influencing knowledge sharing intention and behavior in virtual communities to enhance understanding and provide a foundation for future research, and test and analyze moderating variables that cause inconsistencies in empirical findings, offering deeper insights into contradictory or divergent results.

The purpose of this study is to answer the following research questions: First, what are the factors identified in existing empirical research that influence knowledge sharing intention and behavior in virtual communities, and what is the magnitude of their effects? Second, what are the sources of heterogeneity across different empirical studies, i.e., are there moderating variables such as community type and research context that moderate the effects of these factors on knowledge sharing intention and behavior? To this end, this paper uses meta-analysis to quantitatively test the influencing factors of knowledge sharing intention and behavior identified in existing empirical studies, evaluate their effect sizes, and test the moderating effects on knowledge sharing intention and behavior.

1. Related Research

Virtual communities, also known as online communities, are defined as social aggregators that emerge on the Internet when enough people engage in public discussions with sufficient human emotion for a long enough time [10]. Although scholars from different disciplines have different perspectives when defining virtual communities [11], researchers have pointed out that defining virtual communities requires consideration of five elements: distinctive focus, integration of content and communication, value judgment of member-generated content, openness to competitive information acquisition, and commercial orientation. Some studies have also noted that the two essential elements of virtual communities are community members and platforms that provide common gathering places [12]. Based on the purpose or function of virtual communities, they can be classified into several types, with the most common being communities of transaction, interest, fantasy, and relationship [13]. Other classification schemes exist, such as dividing virtual communities into discussion communities dedicated to information exchange on a defined topic, task and goal-oriented communities aimed at achieving common objectives through collaboration, virtual worlds, and hybrid communities containing multiple types [12]. More detailed sub-classifications exist within each type. For example, discussion communities include face-to-face communication communities, topic-oriented communities, communities of practice, and indirect discussion communities, while task and

goal-oriented communities can be divided into transaction communities, design communities, and online learning communities. Researchers have also proposed a typology of virtual communities from a multidisciplinary perspective, summarizing five attributes: purpose, place, platform, population, and profit model [14].

Community knowledge shared by members is the most important factor for operating and sustaining virtual communities. Generally, knowledge sharing refers to the behavior when an individual disseminates his or her knowledge to other members in an organization [15]. Knowledge sharing behavior in virtual environments is defined as the behavior of using computer-mediated communication (CMC) tools as a means of information exchange to disseminate knowledge acquired by an individual to other members [16]. Virtual community knowledge sharing emphasizes the virtual community as the platform for knowledge sharing. Similarly, knowledge contribution refers to the process of knowledge transfer from one individual to another, which is also a knowledge sharing behavior [17], including providing professional knowledge to help others, solving problems, and forming new ideas. Previous research has identified or tested various factors influencing knowledge sharing intention or behavior, including subjective norms, knowledge sharing self-efficacy, rewards, altruism, reciprocity, honor, helpfulness, shared vision, and social interaction [18-21]. These numerous, relevant, and potentially inconsistent empirical studies provide conditions for applying meta-analysis. Some studies have already used meta-analysis to analyze and synthesize this empirical research. For example, Y.W. Fan and C.C. Wu collected 30 empirical studies and used meta-analysis to retest the variable relationships in their proposed integrated model of knowledge sharing [22]. C.L. Wither spoon et al. surveyed 46 studies and used meta-analysis to summarize determinants of individual-level knowledge sharing intention and behavior in organizations [8]. M. Abouzahra and J. Tan [23] tested and found through 24 collected studies that community type is indeed a moderating variable for some knowledge sharing influencing factors. Hong Xinyuan et al. collected 83 empirical studies on knowledge sharing influencing factors in virtual communities and organizational contexts, using meta-analysis to systematically compare influencing factors of knowledge sharing attitude, frequency, quality, and intention under both contexts [24]. However, existing research tends to focus on testing proposed models or primarily examines the organizational knowledge sharing context, and has not included empirical research on knowledge sharing in Chinese virtual communities. Therefore, this study focuses on the virtual community context, systematically identifies factors influencing knowledge sharing intention and behavior, and tests potential moderating variables to reveal as much as possible the reasons for differences among empirical studies.

2. Research Method and Design

This study employs meta-analysis to identify factors influencing knowledge sharing intention and behavior in virtual communities and their moderating factors.

Meta-analysis is considered not only an effective method for integrating research results addressing the same question but also a method for testing research hypotheses [25].

2.1 Collection and Selection of Sample Data

When using meta-analysis, it is crucial to collect data from multiple sources, not just journals, to overcome publication bias (e.g., journals' tendency to publish studies with large effect sizes). Therefore, this study used various databases to collect existing literature, including English databases such as Web of Science, ProQuest, and ScienceDirect, and Chinese databases such as CNKI, CSSCI, and Airiti Library (Taiwan region). Literature types covered journal articles, dissertations, and conference papers. Considering that existing research often confuses the concepts of knowledge sharing and information sharing, both terms were used as search keywords to maximize recall. Virtual community terms and their variants were used as search keywords because, compared to specific applications, virtual community as a broader concept has more extensive meaning and avoids retrieving excessive noise when using specific applications as keywords. The search strategy used was: SU=(knowledge sharing OR information sharing) AND SU=(online community* OR virtual community*). When searching Chinese databases, corresponding Chinese keywords were used according to Chinese language characteristics and conventions, while the Taiwan region database used traditional Chinese or English to assist retrieval. By October 2016, 1,458 English, 353 Chinese (Mainland), and 21 Chinese (Taiwan region) relevant documents were retrieved through multiple search methods. By browsing titles and abstracts, and full texts when necessary, a large proportion of irrelevant literature was identified, and some full texts were unavailable. Careful verification revealed that many documents were unsuitable for meta-analysis, mainly because some were not empirical studies, and different studies used different analytical methods. Particularly, studies using multivariate analysis methods such as structural equation modeling and discriminant analysis were excluded because current meta-analysis methods cannot handle relationships among multiple variables, and these were only discussed in the conclusions. Therefore, the following literature selection criteria were adopted: (1) Literature must be empirical research, excluding theoretical studies and review papers; (2) Research objects must be knowledge sharing intention or behavior in virtual communities, excluding knowledge sharing intention or behavior in non-virtual community contexts such as organizations, and excluding literature where the dependent variable is not knowledge sharing intention or behavior; (3) Literature must report correlation coefficients (r) and standard errors (se) or t-values and P-values that can be used to calculate correlation coefficients between independent variables and knowledge sharing intention or behavior; (4) Sample independence must be ensured, i.e., independent studies without identical samples.

After multiple rounds of screening by researchers at different time points to

ensure consistency and accuracy in sample selection, and applying the above exclusion and inclusion criteria, 39 relevant studies were finally obtained, including 14 English, 18 Chinese (Mainland), and 7 Chinese (Taiwan) studies, as shown in Table 1 . When screening sample data, only the dependent variable was specified, while independent variables were not predetermined, aiming to systematically identify all factors influencing knowledge sharing intention and behavior in virtual communities. Based on this, independent variables with occurrence frequencies greater than 2 and their corresponding literature were selected for meta-analysis to ensure that more than 2 relevant studies were available for each independent variable in the meta-analysis. It should be noted that among the unavailable English full texts, except for 2 studies whose abstracts were also unavailable and thus could not be judged suitable for meta-analysis, the titles and abstracts of the remaining studies were examined individually, and all were found unsuitable for meta-analysis for reasons including: research objects not being virtual communities, dependent variables not being knowledge sharing intention or behavior, non-empirical research, case studies, online observation or interviews and other non-quantitative empirical research methods, and use of multivariate data analysis methods such as structural equation modeling.

2.2 Coding and Analysis Process

Meta-analysis involves synthesizing and analyzing data from existing research, requiring extraction of literature characteristics and reported data from previous studies, followed by coding and organization. This study adopted an open coding approach, initially developing a coding scheme based on those used in other meta-analyses and through pilot coding with a small number of studies. The coding scheme was continuously revised to suit the sample data, gradually refining and modifying coding variables and their values during the coding process. The coding scheme included study characteristics (author, publication year, literature type, participant country) and variable characteristics (virtual community type, sample size, reliability of constructs, and correlation coefficients). When a study reported the same variable using multiple measurement methods, the most comparable measurement variable's corresponding value was selected as the effect size. For example, when a study reported both knowledge contribution and knowledge collection as two variables measuring knowledge sharing behavior, the correlation coefficient between knowledge contribution and its independent variable was coded for analysis. When comparison was not possible, averaging multiple measurement variables was used to enhance construct validity.

Following the meta-analysis process proposed by M.W. Lipsey and D.B. Wilson [26], this study selected correlation coefficients as effect size values. If a study did not report correlation coefficients, P-values and t-values were used to calculate correlation coefficients. Final correlation values were weighted by sample size and calculated using Fisher's Z transformation formula. Weighted correlation coefficients across different studies were then aggregated. For het-

erogeneity testing, this study used a fixed-effects model for Q-statistic analysis. If heterogeneity test results were significant, samples were divided into multiple groups according to the established moderating factors, and Q-statistics were calculated for each group to assess whether inconsistencies among studies were caused by moderating variables. The entire analysis process was completed using Comprehensive Meta-Analysis software.

3. Research Results

3.1 Overall Meta-Analysis

3.1.1 Sample Coding Results The final sample data included 20 journal articles, 18 dissertations, and 1 conference paper published between 2006 and 2016. Most study participants were from Mainland China (20) and Taiwan region (9), with the remainder from the United States (1), Netherlands (1), multiple regions (3), and unspecified (3). All studies used survey methods, with 27 employing online surveys. Six studies used college students as participants, while the rest used teachers, enterprise employees, or multiple occupations.

Based on all sample data, 122 and 52 independent variables were identified as directly affecting knowledge sharing behavior and knowledge sharing intention, respectively. Independent variables with occurrence frequencies greater than 2 were selected for meta-analysis. Tables 2 and 3 present the overall meta-analysis results for knowledge sharing intention and its influencing factors, and knowledge sharing behavior and its influencing factors, respectively.

3.1.2 Publication Bias A controversial issue in meta-analysis is the "file drawer problem." Fail-safe N reflects the number of missing studies needed to reduce the p-value to non-significance and is often used to assess publication bias. According to R. Rosenthal's recommendation, the Fail-safe N value should be greater than [5 × number of studies + 10] [27]. As shown in Tables 2 and 3, all variables' Fail-safe N values exceed the recommended values. Therefore, all identified factors influencing knowledge sharing intention and behavior can be considered robust and unlikely to be affected by publication bias.

3.1.3 Relationship Strength Different effect size estimation indicators have different critical values corresponding to different levels of importance or significance. In social sciences, multiple criteria exist for classifying correlation coefficient effect sizes. J. Cohen's proposed classification standard [28] has been widely cited: when $r > 0.5$, the correlation is highly significant; when $r > 0.3$, it is moderately significant; when $r > 0.1$, it is weakly significant. Subsequent scholars have proposed more stringent standards, with values of 0.2, 0.5, and 0.8 corresponding to small, medium, and large effect sizes [29]. However, no strict rules exist for classifying effect size magnitude, requiring consideration of research topics and designs. Therefore, this study adopts J. Cohen's classification standard to interpret relationship strength between variables.

As shown in Table 2, all relationships between independent variables and knowledge sharing intention are statistically significant at the 0.05 level, with all lower limits of 95% confidence intervals greater than 0. Altruism (0.65) and knowledge sharing attitude (0.511) show highly significant relationships with knowledge sharing intention, followed by reciprocity (0.455), trust (0.436), knowledge sharing self-efficacy (0.429), subjective norms (0.415), and helpfulness (0.364), which are moderately significant. Descriptive norms (0.271), controllability (0.242), and reputation (0.177) show weak significance in influencing knowledge sharing intention.

As shown in Table 3, all correlations between independent variables and knowledge sharing behavior are statistically significant at the 0.05 level, with all lower limits of 95% confidence intervals greater than 0. Outcome expectations (0.662), common language (0.573), subjective norms (0.529), and identity (0.502) are the four most significant independent variables affecting knowledge sharing behavior. Reciprocity (0.246), altruism (0.245), and motivation (0.289) show lower significance, while the remaining variables including knowledge sharing intention (0.415), knowledge sharing attitude (0.482), knowledge sharing self-efficacy (0.394), trust (0.453), community trust (0.482), and social interaction (0.386) are moderately significant.

3.2 Heterogeneity Test and Moderating Variable Analysis

Tables 2 and 3 also report Q-statistic results. As shown in both tables, except for controllability, Q-values for all influencing factors are significant, indicating that the heterogeneity of these variables' effect sizes originates not only from expected sampling error but also from characteristics of different studies. For knowledge sharing behavior, Q-values for all factors except community trust, social interaction, and subjective norms are significant. Therefore, subsequent subgroup analyses based on study characteristics were conducted to identify moderating variables causing heterogeneity among studies.

Tables 4 and 5 present the analysis results for knowledge sharing intention and behavior with community type and research context as moderating factors (with $k \geq 2$ for each group after grouping by moderating variables). This study used community type as a moderating variable affecting the effectiveness of knowledge sharing incentives, dividing virtual communities into relationship-oriented communities and non-relationship-oriented communities. Relationship-oriented communities primarily refer to social networking sites (SNS) focused on information exchange, while non-relationship-oriented communities include all others, such as research communities for scientific knowledge exchange and leisure communities for solving daily life problems. With community type as a moderating variable, each independent variable's corresponding QB and QW values are significant at the 0.01 or 0.05 level, indicating that study heterogeneity partially originates from different study characteristics and partially from random error within studies, thus demonstrating that community type has a moderating effect on relationships between knowledge sharing intention/behavior and their

corresponding independent variables. In terms of relationship strength, knowledge sharing self-efficacy has a more pronounced effect on knowledge sharing intention in relationship-oriented communities compared to non-relationship-oriented communities. For knowledge sharing behavior, knowledge sharing attitude, knowledge sharing self-efficacy, and identity show higher significance in relationship-oriented communities, while member trust shows the opposite pattern.

Personalism and collectivism, as important dimensions of national or ethnic culture, involve how social members view their own interests versus collective interests [30] and have been widely applied to explain cultural differences in behavior across countries [31]. Using research context as a moderating variable, studies were divided based on whether participants' national cultural characteristics were collectivist or individualist, according to Hofstede's individualism-collectivism dimension and M. Minkov et al.'s revised scores for each country [32]. Table 5 results show that for knowledge sharing intention as the dependent variable, only QB values for knowledge sharing attitude and descriptive norms are significant at the 0.01 level, indicating that research context has a moderating effect only in the influence of these two independent variables on the dependent variable. Knowledge sharing attitude and descriptive norms have more significant effects on knowledge sharing intention in individualist contexts, while heterogeneity in knowledge sharing self-efficacy studies mainly originates from random error within studies. For knowledge sharing behavior, only QB values for knowledge sharing intention and knowledge sharing self-efficacy are significant at the 0.01 level, indicating that research context has a moderating effect on the influence of these two independent variables on knowledge sharing behavior, with larger effects in collectivist contexts. For knowledge sharing attitude, study heterogeneity mainly originates from random error within studies, and research context does not moderate its relationship with knowledge sharing behavior.

4. Discussion

4.1 Factors Influencing Knowledge Sharing Intention and Behavior in Virtual Communities

With robust relationships between knowledge sharing intention/behavior and their influencing factors, all independent variables with occurrence frequencies greater than 2 identified in this study have significant positive effects on knowledge sharing intention and behavior, though the effect sizes differ across factors, as shown in Figure 1 [Figure 1: see original paper]. For knowledge sharing intention, the most critical factors are altruism and knowledge sharing attitude, followed by reciprocity, trust, knowledge sharing self-efficacy, subjective norms, and helpfulness, while descriptive norms, controllability, and reputation have weaker significance. Hong Xinyuan et al. [24] found that knowledge sharing self-efficacy, subjective norms, and knowledge sharing attitude were moderately significant factors affecting knowledge sharing intention, but differed consid-

erably in identifying high and low significance factors, failing to identify low-significance factors for virtual community knowledge sharing intention while considering reputation as a high-significance factor. These differences may stem from the language of analyzed literature; this study includes Chinese literature from Mainland China and Taiwan in addition to English literature, partially demonstrating cultural differences in virtual community knowledge sharing intention.

Among all variables affecting knowledge sharing behavior, outcome expectations, common language, subjective norms, and identity are the four most important factors, while knowledge sharing intention, knowledge sharing attitude, knowledge sharing self-efficacy, trust, community trust, and social interaction have moderate significance, and reciprocity, altruism, and motivation have weaker significance.

Compared to highly significant independent variables, moderately or weakly significant variables are more likely to be inconsistent across studies, or there may be insufficient empirical research with consistent conclusions to provide supporting evidence. Therefore, future research should further investigate and confirm the significance of these moderate or weak independent variables. For example, regarding trust's effect on knowledge sharing behavior, some studies suggest trust is the most influential factor [33], while others find no significant effect [34]. Additionally, although existing research agrees that knowledge sharing intention significantly positively affects knowledge sharing behavior, the magnitude differs across studies. For instance, the correlation coefficient was only 0.26 in F.V. Acker et al.'s study [35], but above 0.6 in B.M. Alajmi [19] and H.L. Chen et al.'s studies [36]. Comparison reveals these studies differ in characteristics such as participants and community types. Among weakly significant variables, Li Xianyin et al. [3] found reciprocity had a significant negative effect on knowledge sharing behavior (r = -0.057), while Chen Chunguang [37] found a significant positive effect (r = 0.435).

Highly significant independent variables also warrant attention because effect sizes still vary across studies. For example, some research found outcome expectations had no significant positive effect on knowledge sharing behavior [38], inconsistent with this study's conclusion based on synthesizing multiple empirical results. This inconsistency may occur because even highly significant variables show some inconsistency across studies, but the effects of a few inconsistent studies are offset by many highly consistent and significant studies in the synthesis. It is also worth noting that this meta-analysis sample does not include multivariate analysis literature, considering only bivariate relationships, which may ignore effects of collinearity among independent variables. Therefore, results from synthesizing multiple studies require objective and cautious interpretation.

4.2 Community Type and Research Context as Moderating Variables

Through heterogeneity testing and subgroup analysis, this study found that community type and research context can partially explain heterogeneity in certain independent variable-dependent variable relationships across studies. First, this study reconfirms M. Abouzahra and J. Tan's [23] finding that community type can serve as a moderating variable for some variable pairs in virtual community knowledge sharing influencing factor research. However, since that study's dependent variable was knowledge sharing in general, it is difficult to compare effectively with this study. This study identifies these variables as including knowledge sharing attitude-knowledge sharing behavior, knowledge sharing self-efficacy-knowledge sharing behavior, member trust-knowledge sharing behavior, identity-knowledge sharing behavior, and knowledge sharing self-efficacy-knowledge sharing intention.

Research indicates that virtual communities have various forms, such as forums, instant messaging tools, blogs, wikis, and social bookmarking platforms [39], with different types having different characteristics. For example, studies suggest SNS virtual community members have stronger sense of belonging [40]. This study further confirms these differences. Compared with non-relationship-oriented communities, knowledge sharing attitude, knowledge sharing self-efficacy, and identity have more significant effects on knowledge sharing behavior in relationship-oriented communities; for knowledge sharing intention, knowledge sharing self-efficacy also shows higher significance in relationship-oriented communities. Therefore, future research should deeply investigate differences between relationship-oriented and other community types, particularly using qualitative methods to explore motivations and factors driving knowledge sharing across community types. Empirical studies should also specifically distinguish virtual community types to make conclusions and practical implications more targeted.

Second, this study found that research context can also serve as a moderating variable for some variable pairs in virtual community knowledge sharing research, including knowledge sharing intention-knowledge sharing behavior, knowledge sharing self-efficacy-knowledge sharing behavior, knowledge sharing attitude-knowledge sharing intention, and descriptive norms-knowledge sharing intention. Specifically, knowledge sharing intention and knowledge sharing self-efficacy have larger effects on knowledge sharing behavior in collectivist contexts, while knowledge sharing attitude and descriptive norms have more significant effects on knowledge sharing intention in individualist contexts. Existing research indicates that people in collectivist societies are more willing to share information and knowledge than those in individualist societies [41], although this sharing willingness in collectivism is often limited to their relational circles and diminishes outside these circles. In virtual community environments where members are anonymous strangers, self-related factors such as knowledge sharing self-efficacy become more significant in collectivist contexts, while knowledge sharing intention and self-efficacy also have more pronounced promoting

effects on knowledge sharing behavior. Furthermore, collectivism and individualism exist not only at the national cultural level but also at the individual level—individuals from collectivist cultural countries may also have individualist tendencies. Therefore, future research on virtual community knowledge sharing intention or behavior could incorporate individualism-collectivism variables at the individual level to test how personal cultural value orientation affects knowledge sharing intention and behavior.

5. Limitations and Future Research

This study has several limitations. First, although sample data were collected from multiple mainstream databases covering various literature types, the sample remains somewhat incomplete, such as not searching specialized conference databases like the AIS Digital Library. Second, there are inherent limitations of meta-analysis, such as the requirement that selected independent variables must have frequencies greater than 2. Third, this study only tested community type and research context as moderating variables to explain study heterogeneity, and both moderating variables were only dichotomized. Therefore, future research could adopt systematic review, meta-ethnography, and other methods to more comprehensively identify factors influencing virtual community knowledge sharing intention and behavior from integrated qualitative and quantitative perspectives. Additionally, other contexts such as organizational knowledge sharing intention and behavior could be compared more deeply with virtual communities. Other moderating variables could also be tested, such as participant characteristics (e.g., whether participants are students) and knowledge sharing methods (face-to-face vs. online sharing) and their moderating effects on independent variable-dependent variable relationships.

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Author Contributions

Cao Shujin: Research design and framework, paper revision.
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Note: Figure translations are in progress. See original paper for figures.