Understanding Continuance Intention of Knowledge Creation in Online Communities from a Social-psychological Perspective

Shih-Wei Chou¹, Ching-Chang Lee¹, Yu-Chieh Chang², Chun-Tong Lin¹

¹.Department of Information Management National Kaohsiung First University of Science and Technology
swchou@ccms.nkfust.edu.tw; cclee@ccms.nkfust.edu.tw
².Department of marketing management, Shu-Te University
andy@mail.stu.edu.tw

Abstract

Grounded on both social cognitive theory and expectation-disconfirmation theory (EDT), this study aims to investigate how individuals’ continuance intention of knowledge creation and satisfaction are affected by their perceived identity verification (PIV) and performance expectancy. In addition, we also explore how the foregoing relationships are contingent on trust—affective trust and cognitive trust. To assess the theoretical model, we surveyed two online communities—Baidu (China) and Yahoo knowledge+ (Taiwan), including 213 and 216 useful responses respectively. Both PIV and performance expectancy are positively associated with continuance intention of knowledge creation. While performance expectancy has a significant impact on satisfaction, in Baidu community, PIV affects satisfaction indirectly (through performance expectancy) rather than directly. Finally, neither the relationships between PIV and continuance intention nor those between performance and continuance intention are contingent on trust based on our findings. This study provides a new insight into how knowledge creation can be facilitated by PIV and performance expectancy, and how the foregoing relationships are contingent on trust. Our findings have implications for both practice and theory.

1. Introduction

Quite a few studies have focused on knowledge management (KM) in an online community such as the relationships between social capital and knowledge contribution [39], or between individuals’ perceived identity verification (PIV) and knowledge contribution [23]. Despite this, the problems of how to facilitate an individual’s knowledge creation effectively in an online setting remain unsolved. An online community describes a group of people who communicate and interact, develop relationships, and collectively or individually seek to attain some goals in an IT (information technology)-supported virtual space [22]. Knowledge creation refers to developing new content or replacing existing content; the above activities are performed through the conversion between two types of knowledge—tacit and explicit knowledge [1]. Nonaka [26] have used four modes of knowledge creation—socialization (S), externalization (E), combination (C), and internalization (I), or SECI model, to describe how the conversion from existing knowledge to new knowledge is performed.

This study emphasizes individuals’ knowledge creation because in the context of a loosely knit community, knowledge creation is mainly affected by an individual’s knowledge creation and by how the knowledge can be aggregated [23]. Previous research indicated that social interaction in the context of technology-mediated communication is confronted with the following problems, including social cue deficiencies because it is difficult to transmit important contextual cues such as body language, a symbolic gesture, and physical surroundings [23, 30]. Further, due to the lack of synchronicity and immediacy in a virtual environment [21], the effect of social norms on individuals’ behavior can be attenuated, leading to social loaing.

Despite these challenges, prior work found that individuals are engaged in social activities in a technology-mediated environment such as knowledge contribution [39]. Although it is generally agreed that KM-related activities in an online setting can be looked at from a socio-psychological perspective, a systematic approach to this remains lacking. To fill this gap, drawing on three streams of theories—expectation-disconfirmation theory (EDT) [28], social cognitive theory [3, 10], and perceived identity verification (PIV) [36], we propose an integrative model and test it empirically.
Specifically, theory suggests that performance expectancy and PIV denotes members’ beliefs, which may affect their satisfaction and continuance intention. Further, according to Deci and Ryan [12], people are both intrinsically and extrinsically motivated; PIV refers to an intrinsic motive, and performance expectancy is extrinsic. Following Ma and Agarwal [23], this study defines PIV as the perceived confirmation from other community members of a focal person’s belief about his identities. Performance expectancy is defined as the degree to which an individuals’ believes that using the system (or the online community) will help them to attain gains in job performance [38]. Finally, trust can be considered as social capital because it represents organizational resource or asset rooted within social relationships that can improve the efficiency of coordinated action [19]. In this study, trust (in terms of cognitive trust and affective trust) serves as a contextual factor.

2. Theory and hypothesis development

2.1. Continuance intention of knowledge creation

Figure 1 lists the research model. This study uses EDT as guidelines on the development of theoretical model. EDT [27] has been used by researchers to understand consumer satisfaction, repurchase intentions, and complaining behaviors in contexts such as automobile repurchase and IT (information technology) usage [5]. In order to adapt EDT to a different context such as continuance in an online community, several theoretical extensions are required. Such extensions tend to provide both unique opportunities for theory refinement and better understanding for IS continuance decisions.

![Figure 1. Theoretical model](image)

The extensions are threefold. First, following prior work [5, 23], the proposed continuance model focuses only on post-acceptance variables. Both PIV and performance expectancy are regarded as members cognitions, which have reached a steady-state equilibrium as they become more realistic and entrenched in observed behaviors. Second, this study posits that the effects of any pre-acceptance variables are already captured within the satisfaction constructs. This is a simple yet reasonable approach to analyzing the continuance intention. Finally, following EDT’s definitions of a belief, it is measured in our proposed model in terms of performance expectancy and PIV respectively. Although both of them theoretically may be a broader construct, encompassing many additional beliefs (e.g. usefulness, or easy of use), the key role of PIV and performance expectancy in affecting IS users’ continuance intention has been recognized by prior research [23, 38].

2.2. Perceived identity verification and continuance intention of knowledge creation

As previous noted, PIV refers to the first salient antecedent that may affect an individual’s continuance intention of knowledge creation. Based on Wynn and Katz [40], PIV aims to facilitate both communication of identity and a shared understanding of self. The reasons why communication of identity tends to affect interaction are three-fold. First, the acquisition of knowledge becomes easier and more efficient when the expert is identifiable because the identity of knowledge contributors helps knowledge seekers recognize source credibility [32]. Second, the likelihood of communicating and building relationships with each other is increased in people who have similar identity, including similar interests, in similar social groups or with similar experiences [18]. Finally, effective identity communication facilitates contribution [23]. In sum, establishing members’ online identity strengthens their motivation of knowledge contribution and an exchange of knowledge because of efficient knowledge adoption, building relationships, and reciprocation.

Regarding a shared understanding of self, according to Wynn and Katz [40], the representation of identity communicated in an online community must be a true reflection of what the member believes he/she is. Grounded on cognitive dissonance theory, Swann et al’s [34] study noted that members are more satisfied and likely to participate in a relationship when their salient identities are confirmed by others in a group. In sum, identity tends to promote positive attitudes (e.g. a sense of understanding, coherence, and security) and prosocial behavior such as participation in KM activities.

According to self-verification literature [35], the focus of PIV for this study is on the relationship between an individual’s perceived online identity verification and her online social interaction, rather than an individual’s real identity and her online behavior. Thus, we do not draw a distinction between
an individual’s online identity (perhaps fictional) and her real identity. In addition, following Ma and Agarwal’s [23] work, PIV is conceptualized as a perceptual construct. The reasons for this are two-fold. First, empirical study has shown that individuals’ behavior is driven by their perceptions rather than by the accuracy of the perceptions, even though it is possible that individuals may perceive more self-confirmation than the actual situation [36]. The individual’s perceptions of others’ assessment rather than how the individual’s salient referents actually perceive her play an important role in affecting her behavior. Second, we emphasize the perceived confirmation of identities from others instead of the objective agreement between an individual’s self-view and others’ appraisal, because measuring the latter in an online community involving quite a few members is not feasible.

After understanding what an individual’s identity verification is and how it may affect interaction and his/her beliefs, we aim to investigate whether the continuance intention of knowledge creation is affected by PIV based on EDT. There are three possible reasons that PIV may affect continuance intention. First, as previously noted, PIV facilitates not only interaction, but also relationship-building in online setting. Second, from a socio-psychological perspective, individuals participate in prosocial behavior (such as knowledge contribution and sharing) in a virtual environment because of social benefits such as reputation, future reciprocation, and self-esteem [7, 39]. Finally, high PIV refers to no contradiction between the understanding of other members of the online community and an individual’s self-view [24], which engenders feelings of cognitive consonance in the interpersonal discourse. This in turn may positively affect the individual’s beliefs about participating in knowledge creation in an online community. Thus, this leads to the first hypothesis.

H1: An online community member’s perceived identity verification is positively related to his/her continuance intention of knowledge creation.

In our context, satisfaction refers to whether a member is content with her access to the community resources. Confirmation of individuals’ identities is positively associated with satisfaction based on self-verification theory [33]. Empirical tests [36] of this theory confirmed that identity verification is associated with satisfaction significantly. In an online community, the more a member’s identity is recognized and verified by other members, the more she feels better understood and is more likely to believe she will be treated in desired ways [23]. This in turn indicates that individuals with higher PIV are more likely to not only have cognitive consonance [24], but also control the proceedings of the social interaction, including exchanging ideas and information. Under such conditions, these members are more satisfied with the community than those with lower PIV. This leads to the second hypothesis.

H2: An online community member’s perceived identity verification is positively related to his/her satisfaction with the community.

According to EDT [5, 6, 11], satisfaction has been theorized and validated as an important predictor of intention of IS use. Anecdotal evidence supports this argument. Satisfaction is an affect, captured as a positive (i.e. satisfied) feeling [27]. TAM-based (technology acceptance model) studies [11] contended that affect plays an important role in predicting intention of IS use. On the other hand, from the perspective of social relationship and behavior, Givertz and Segrin [15] reported that members’ satisfaction with social relationships promotes the development of relationship continuance and commitment. Applying this to our study, in a KM-related community, members who have satisfaction with the community are more likely to be involved in behaviors that aim to maintain a healthy relationship such as facilitating knowledge contribution, sharing, and creation. This leads to our third hypothesis.

H3: An online community member’s satisfaction with the community is positively related to his/her continuance intention of knowledge creation.

2.3. Performance expectancy and continuance intention of knowledge creation

In addition to perceived identity verification, performance expectancy may also affect both members’ satisfaction and continuance intention. As previously noted, both of them refer to individuals’ post-consumption variables [5] and may motivate an individual to participate in knowledge creation in a community—while performance expectancy represents an extrinsic benefit, PIV is associated with an intrinsic benefit. On the other hand, performance expectancy has been recognized by prior work [19, 38] as a strong predicator of intention. We extend CDT (cognitive dissonance theory) [13] by arguing that the more PIV a member of a community has, indicating she may experience more cognitive consonance about the perceived performance of the community than those with less PIV, the more performance expectancy the member has. This leads to the fourth hypothesis.
H4: An online community member's perceived identity verification is positively related to his/her performance expectancy.

In this study, drawing on both expectation-confirmation theory (ECT) [5, 27] and Venkatesh et al.'s [38] empirical study, ex post performance expectancy is used for representing post-consumption expectation in the proposed IS continuance model. While TAM found perceived usefulness and perceived ease of use as salient beliefs influencing IS acceptance behaviors across a broad range of end-user computing technologies [11], Compeau and Higgins [10] found that performance expectancy positively influences IS end users' affect. IS users' post-acceptance affect (satisfaction) is more likely to be affected by performance expectancy. This leads to the fifth hypothesis.

H5: An online community member’s performance expectancy is positively related to his/her satisfaction with the community.

There are two reasons that performance expectancy may affect continuance intention. First, enhanced performance is instrumental in achieving various rewards that are extrinsic to the task contexts, such as promotions or monetary gains. IS use (such as participation in an online community) can be regarded as a means to that end. Second, as previously noted, while there are many similarities between performance expectancy (i.e. ex post expectation) and usefulness [10, 11], the former exerts more influence on behavioral intention than the latter [38]. Thus:

H6: An online community member's performance expectancy is positively related to his/her continuance intention of knowledge creation.

2.4. The moderating role of trust in continuance intention of knowledge creation

Finally, in addition to the perceived identity verification and performance expectancy, trust also plays a central role in a frank exchange of views, knowledge contribution [39], and integration of members' expertise in a software development team [37]. This view about trust is appropriate for knowledge creation in the context of an online community because achieving knowledge creation depends not only on the knowledge contributions of other members (i.e. acquiring useful knowledge), but also on the decisions made about how the foregoing knowledge is combined (i.e. the conversion of other members' knowledge into new knowledge) [26].

Prior work has recognized that individuals' belief and behavior are contingent on trust in the context of a online community, such as electronic networks of practice [39] and the development of open source software [31]. Despite this, how trust affects the relationships between performance expectancy and continuance intention of knowledge creation remains unknown. To fill this gap, this study explores how trust, in terms of affective trust and cognitive trust [25], moderates the foregoing relationships. Affective trust stems from the emotional attachment between a trustor and a trust target and may, therefore, play a significant role in members’ psychological and emotional reasons for participating in, and contributing to an online community [25].

With strong affective trust, members believe that they may derive more social benefits from their perceived identity verification because the foregoing verification or interpersonal congruence is trustworthy and both harmonious interaction and creative performance are assured [35]. Conversely, when affective trust is weak, individuals can not sure whether the existing perceived identity verification is true, even though it is high. Under such conditions, members’ motivation decreases because they believe that they may not receive social benefits derived from reciprocal relationships (or reciprocal supportiveness). Thus:

H7a: An online community member's affective trust moderates the relationships between his/her perceived identity verification and continuance intention.

Cognitive trust relies on a rational assessment of the target by the trustor [25] and such assessments may include both the evaluation of the competence of the trust target and the probability of opportunistic behavior by the target. In the context of open source software development, high cognitive trust tends to lead to reputation motivations, because the effectiveness of the software development depends largely on the inputs of other developers [31].

When a member has high cognitive trust in other members, he believes that he may derive more social benefits from participating in the KM activities in the community because of a sense of mutual indebtedness. Thus, it is worthwhile to devote his time and efforts to KM activities in the community—e.g. the conversion from other members' knowledge to his own knowledge, or knowledge contribution, so that he may reciprocate the benefits he receive from others, ensuring ongoing supportive exchanges [39]. Conversely, when cognitive
trust is low, individuals are not willing to waste an effort to join the community because he thinks that he is not likely to acquire useful knowledge from the community, leading to low performance expectancy. Thus:

**H7b:** An online community member’s cognitive trust moderates the relationships between his/her performance expectancy and continuance intention.

### 3. Method, data analysis, and results

#### 3.1. Data collection

We tested the hypotheses using primary survey data collected from two famous online communities—Baidu (at zhidao.baidu.com) and Yahoo knowledge+ (at tw.knowledge.yahoo.com). The former was launched on the Web in 2005 and is located in China, while the latter was established in 2004 and its members mainly come from Taiwan. Both communities fall into the category of “a community of common interest or information exchange” [2]. Although the establishment time of both of the foregoing communities is not long, the population of them is growing at a fast rate. The possible reason is that these communities aim to cover a diverse range of issues so that members can either acquire knowledge or they may have an exchange of views about a specific subject that they are interested to know. Examining two communities that belong to different countries may extend the generalizability of the findings because we explore how continuance intention of knowledge creation is affected by PIV or performance expectancy under different conditions.

Table 1 lists the demographic profile of the respondents. The members of Baidu and Yahoo knowledge+ returned 245 and 250 questionnaires respectively to the authors. Responses with incomplete data were eliminated from further analysis. Thus, 213 and 216 useful responses from Baidu (China) and Yahoo knowledge+ (Taiwan) respectively were used in the data analysis. Both of Baidu and Yahoo knowledge+ are dominated by man. The average age of Baidu is lower than that of Yahoo knowledge+. Respondents from both communities are well educated—approximately 60% in Yahoo knowledge+ and more than 70% in Baidu have college degrees, and they have significant Internet experience (more than 5 years for both communities). Finally, respondents of both communities have been members of their respective communities for a considerable amount of time (one year for Baidu and 1.5 years for Yahoo knowledge+), and the average participation rates of Baidu and Yahoo were 5 hrs/week and 7 hrs/week respectively. Given the samples are active members and have experience in knowledge creation, they are suitable to answer the questionnaire.

<table>
<thead>
<tr>
<th>Table 1. Demographic information of respondents</th>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td>&lt;20</td>
</tr>
<tr>
<td>21-30</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>&gt;40</td>
</tr>
<tr>
<td><strong>Education</strong></td>
</tr>
<tr>
<td>High school</td>
</tr>
<tr>
<td>College</td>
</tr>
<tr>
<td>&gt;College</td>
</tr>
<tr>
<td><strong>Browsing time (day/week)</strong></td>
</tr>
<tr>
<td>≤1</td>
</tr>
<tr>
<td>1-3</td>
</tr>
<tr>
<td>4-6</td>
</tr>
<tr>
<td>&gt;6</td>
</tr>
<tr>
<td><strong>Tenure (months)</strong></td>
</tr>
</tbody>
</table>

To assess the possible nonresponse bias, we drew comparisons between the major variables of early respondents and those of late respondents. The results of t-tests for the demographic profiles, perceived identity verification, performance expectancy, community tenure, etc. are not significant. The only variable that makes a significant difference is the continuance intention of knowledge creation, which implies, not surprisingly, that the more active members are more likely to respond earlier.
3.2. Operationizational of key constructs

Survey items are listed in Appendix. The items of the questionnaire were adapted from measures that had been validated by related studies, and these items have been modified to fit in with the context of this study. Specifically, two salient antecedents of continuance intention—perceived identity verification and performance expectancy, were developed based on relevant studies [23, 39]. Regarding perceived identity verification, following Kuhn and McPartland [20], we used a modified Twenty Statements Test (TST) to capture salient identities of a community member. The TST acknowledges that an individual can have multiple identities and different identities may become dominant in different contexts. In addition, consistent with prior work [23], the number of items that we used to measure TST have been reduced from 20 to 5 to minimize the effects of fatigue. After completing the TST, the respondents were asked to rate their perception, in terms of one item as shown in Appendix, of other community members’ perception of the foregoing five identities. Each solicited identity was measured by the item, resulting in 5 items in total. The results of factor analysis indicate that only the first two identity load on its corresponding factor. The possible reason is that these identities are salient for the subjects. Consequently, two items were used to measure an individual’s PIV.

While the moderating variables (i.e. affective trust and cognitive trust) were borrowed from Stewart and Gosain [31], with the items modified to fit this study’s context, the items measuring satisfaction were adapted from Ma and Agarwal [23]. Finally, the dependent variables—continuance intention of knowledge creation, were adapted from prior work [4, 6] and were altered to fit the online community context. We created one construct for continuance intention of knowledge creation by forming a second-order construct from a scale measuring four types of knowledge creation modes, i.e. Socialization, Externalization, Combination, Internalization, or SECI model [1, 26]. The items in the questionnaire were measured using five-point scales anchored from “strongly disagree” to “strongly agree.” Appendix lists the questionnaire items.

4. Analysis

4.1. Measurement model

PLS was used because it allows latent variables to be modeled either as formative or reflective indicators [8] as was the case with our data, and it places minimal demands on variable distributions. A few of our variables were not strictly normal distributed, which may cause problems provided factor-based covariance approaches (such as LISREL and AMOS) are used [9]. This analysis of this study was performed using PLS-Graph Version 3.00.

Following recommended two-stage analytical procedures [8], we first validated the measurement model and then examined the structural relationships. Because our model contains one second-order construct (i.e. continuance intention of knowledge creation), we created a superordinate second-order construct using factor scores for the first-order constructs [9].

To validate our measurement model, three types of validity were examined—content validity, convergent validity, and discriminant validity. Content validity was established by ensuring that the measurement items are consistent with the extant literature. This was done by both interviewing senior members of community and pilot-testing the questionnaire. Regarding convergent validity, we examined both composite reliability and average variance extracted (AVE) from the measures [16]. As recommended by [8], 0.7 refers to the reliability threshold of a construct. As indicated in Table 2, the composite reliability values of Yahoo knowledge+ range from 0.719 to 0.89, while those of Baidu range between 0.734 and 0.864. For the AVE of a measure, a score of 0.5 is acceptable [14]. All our measures of AVE are greater than 0.5, which indicates acceptability. Finally, the discriminant validity of our instrument was validated by assessing the square root of AVE as suggested by Fornel and Larcker [14]. The discriminant validity is also acceptable because the square root of the AVE for each construct is greater than the levels of correlations involving the construct. Further, the results of the inter-construct correlations demonstrate that each construct shares larger variance with its own measures than with other measures.

4.2. Structural model

Given the acceptable validity of our measurement model, PLS was used for examining the proposed hypotheses. We describe the results in the following sequence—the impact of PIV on satisfaction and continuance intention of knowledge creation (H1-H3), the influence of performance expectancy on satisfaction and continuance intention of knowledge creation, the relationships between PIV and performance expectancy (H4-H6), and the moderating role of trust in continuance intention (H7 and H8).

As indicated in Table 4, H1 and H3 are supported as expected, whereas H2 is not supported surprisingly.
Regarding the relationship between PIV and continuance intention of knowledge creation, the path coefficients of Baidu and Yahoo knowledge+ are 0.179 (p<0.01) and 0.111 (p<0.01) respectively. As to the path between satisfaction and continuance intention, β of Baidu is 0.493 (p<0.001), while that of Yahoo knowledge+ is 0.37 (p<0.001). Concerning the relationship between PIV and satisfaction, the coefficient of Baidu is not significant (0.056), and neither is that of Yahoo knowledge+ (-0.012).

While H5 and H6 are supported as expected, the findings of H4 are inconsistent—H4 is supported in the context of Baidu (β=0.47, p<0.001), whereas it is not supported in Yahoo knowledge+ (β=0.103). Concerning the relationship between performance expectancy and continuance intention, the coefficient of Baidu and Yahoo knowledge+ are 0.241 (p<0.001) and 0.314 (p<0.001) respectively. Regarding the relationship between performance expectancy and satisfaction, the path coefficient of Baidu is 0.352 (p<0.001), while that of Yahoo knowledge+ is 0.480 (p<0.001).

Finally, H7 aims to investigate whether the strength of relationships between PIV and continuance intention varies according to affective trust, while H8 aims for understanding whether the strength of relationships between performance expectancy and continuance intention varies according to cognitive trust. To make rigorously comparisons across subgroups, we calculated t-statistics to evaluate the differences between path coefficients of the two subgroups.

From Table 2, surprisingly, neither H7 nor H8 is supported. Regarding affective trust, none of the relations is contingent on it. On the other hand, while three relations of Baidu (i.e. PIV and continuance intention, PIV and satisfaction, PIV and performance expectancy) are moderated by cognitive trust, only one relation (PIV and continuance intention) of Yahoo knowledge+ is contingent on cognitive trust. The results are summarized in Table 3.

Table 2. Model summary: statistical comparison of paths

<table>
<thead>
<tr>
<th>Path</th>
<th>Comm</th>
<th>High AT (%)</th>
<th>Low AT (%)</th>
<th>Comparison of AT (T-value)</th>
<th>High CT (%)</th>
<th>Low CT (%)</th>
<th>Comparison of CT (T-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIV → CI</td>
<td>Ya</td>
<td>0.067</td>
<td>-0.044</td>
<td>(1.224)</td>
<td>-0.075</td>
<td>0.137</td>
<td>(-2.021)*</td>
</tr>
<tr>
<td></td>
<td>Ba</td>
<td>0.220*</td>
<td>0.083</td>
<td>(1.191)</td>
<td>0.422***</td>
<td>0.096</td>
<td>(2.619)**</td>
</tr>
<tr>
<td>PIV → SA</td>
<td>Ya</td>
<td>0.073</td>
<td>-0.112</td>
<td>(1.588)</td>
<td>0.019</td>
<td>-0.011</td>
<td>(0.246)</td>
</tr>
<tr>
<td></td>
<td>Ba</td>
<td>0.041</td>
<td>-0.044</td>
<td>(0.851)</td>
<td>0.219*</td>
<td>-0.054</td>
<td>(2.205)*</td>
</tr>
<tr>
<td>SA → CI</td>
<td>Ya</td>
<td>0.175</td>
<td>0.411***</td>
<td>(-1.850)</td>
<td>0.330**</td>
<td>0.406***</td>
<td>(-0.803)</td>
</tr>
<tr>
<td></td>
<td>Ba</td>
<td>0.522***</td>
<td>0.470***</td>
<td>(0.472)</td>
<td>0.445***</td>
<td>0.537***</td>
<td>(-0.785)</td>
</tr>
<tr>
<td>PIV → PE</td>
<td>Ya</td>
<td>-0.003</td>
<td>0.164*</td>
<td>(-1.354)</td>
<td>0.153</td>
<td>0.120</td>
<td>(0.256)</td>
</tr>
<tr>
<td></td>
<td>Ba</td>
<td>0.407**</td>
<td>0.430***</td>
<td>(-0.148)</td>
<td>-0.447*</td>
<td>0.470***</td>
<td>(-5.483)**</td>
</tr>
<tr>
<td>PE → CI</td>
<td>Ya</td>
<td>0.415***</td>
<td>0.269***</td>
<td>(1.080)</td>
<td>0.274**</td>
<td>0.241*</td>
<td>(0.242)</td>
</tr>
<tr>
<td></td>
<td>Ba</td>
<td>0.128</td>
<td>0.292**</td>
<td>(-1.261)</td>
<td>0.269</td>
<td>0.195*</td>
<td>(0.466)</td>
</tr>
<tr>
<td>PE → SA</td>
<td>Ya</td>
<td>0.362***</td>
<td>0.512***</td>
<td>(-1.189)</td>
<td>0.314***</td>
<td>0.499***</td>
<td>(-1.600)</td>
</tr>
<tr>
<td></td>
<td>Ba</td>
<td>0.169</td>
<td>0.420***</td>
<td>(-1.491)</td>
<td>0.260</td>
<td>0.354***</td>
<td>(-0.605)</td>
</tr>
</tbody>
</table>

Note: PIV: perceived identity verification; PE: performance expectancy; SA: satisfaction; CI: continuance intention; Comm: community; Ya: Yahoo Knowledge+ (Taiwan); Ba: Baidu (China); AT: affective trust; CT: Cognitive trust

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

Table 3. Results of hypothesis testing

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
<th>Yahoo+</th>
<th>Buda</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 An online community member’s perceived identity verification is positively related to his/her continuance intention of knowledge creation.</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>H2 An online community member’s perceived identity verification is positively related to his/her satisfaction with the community.</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>H3 An online community member’s satisfaction with the community is positively related to his/her continuance intention</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>
### 4.3. Addressing common method variance

Common method variance (CMV) refers to a potential threat to internal validity, especially to research using surveys that collect responses in a single setting. To deal with CMV, we used the following approaches. First, we collected data in two separate stages—with dependent and independent variables measurement separated in time. Second, we used factor analysis to examine the CMV in the data set. According to Harman’s one-factor test, CMV is high provided that a single factor accounts for a majority of covariance in the independent and dependent variables. Our factor analysis did not detect such a single factor explaining a majority of the covariance. Using the above methods, we believe that CMV is unlikely to occur in this study.

### 5. Discussion and implications

#### 5.1. Discussion

Overall, our findings provide strong empirical support for the proposed theoretical model. Three important conclusions can be drawn from this study. First, in both communities, performance expectancy plays a key role in members’ satisfaction and knowledge creation behavior. This result extends EDT and Bhattacharjee’s [5] study by arguing that members’ performance expectancy serves as a salient post-consumption variable, which affects the continuance intention of knowledge creation in online communities. While most EDT-related studies [5, 6] contended that IS users’ perceived usefulness influences their behavior, this study argues that individuals’ performance expectancy represents an alternative way of affecting their behavior because it attempts to explain individuals’ behavior from the perspective of social cognition—including both performance and personal outcome expectations [3, 10, 38], although more rigorous studies are needed to generalize this argument.

Second, in addition to members’ performance expectancy, our findings of the relationships between PIV and continuance intention are somewhat interesting. As shown in Table 4, our results are consistent with the findings of Ma and Agarwal [23]—PIV is positively associated with continuance intention. However, surprisingly our findings indicate that PIV affects satisfaction indirectly through performance expectancy rather than directly in Baidu community, while satisfaction is not influenced by PIV in Yahoo knowledge+ community. This implies that members’ behavior in online communities may vary according to their country of origin or culture. Further, while Ma and Agarwal’s [23] empirical study showed that PIV plays a significant role in satisfaction, our findings extend this by arguing that when PIV and performance expectancy are being considered simultaneously for their influence on satisfaction, performance expectancy exerts more influence on satisfaction than PIV.

Finally, regarding the moderating effect of trust on members’ behavior, although our hypotheses are not supported, cognitive trust does moderate some relationships (as shown in Table 4), including the relationships between PIV and continuance intention in both communities, and two other relationships in Baidu—PIV and satisfaction, PIV and performance expectancy. The implications of the above findings are two-fold. First, our findings suggest that individuals’ behavior in the context of a loosely-knit community is affected more by the trust based on rational assessment of the target by the trustor (i.e. cognitive trust) than by the emotional attachment between a trustor and a trust target (i.e. affective trust). Second, from Table 4, the moderating effect of cognitive trust between PIV and continuance intention is inconsistent; whereas the
The foregoing relationship is negatively moderated by cognitive trust in Yahoo knowledge+ community ($T= -2.021$, $p<0.05$), cognitive trust in Baidu positively moderates the above relationships ($T= 2.619$, $p<0.01$). This implies it is likely that other salient factors (such as culture) may affect the relationships between PIV and individuals’ behavior. Future study may focus on addressing this problem.

5.2. Limitations and future study

This study has three limitations. First, an ideal empirical design for assessing EDT would be a longitudinal comparison between individuals’ pre-adoption and post-adoption perceptions, because a cross-sectional study usually makes it difficult for faithfully capturing the complex, dynamic interrelations between salient variables of individuals’ belief (or attitude) and continuance decisions. Future study may emphasize temporal comparisons such as changes in performance expectancy and PIV across acceptance and continuance phases. Second, although the theories used in this study are based on IS-related theories, the proposed model does not contain an IT artifact, which differentiates our model from other types of community (offline). Finally, this study did not assess the impact of culture on members’ knowledge creation behavior because people from China and Taiwan have somewhat similar culture. Future study may focus on this issue.

5.3. Contributions

The contributions of this study are three-fold. First, by testing the proposed theory in two representative but different online communities, we are confident that the key concept—perceived identity verification and performance expectancy—can be applied to other online communities focused on information-exchange. Second, the motivation of participating online communities was examined from two different but complementary perspectives. While performance expectancy refers to members’ rational thought of participating in an online community—i.e. outcome expectations, PIV improves members’ motivation of knowledge creation from an emotional perspective—i.e. strong PIV indicates higher interpersonal congruence, which in turn fosters group interaction and creative performance [23]. Therefore, we believe that the results deepen our understanding of how individuals’ continuance intention of knowledge creation can be facilitated by the foregoing factors. Finally, because this study is based on sound theories, such as EDT, social cognitive theory, and self-verification theory, our findings not only extend EDT’ influence, but also can be applied to a variety of similar contexts.

6. References


