

ONLINE KNOWLEDGE COMMUNITY PARTICIPATORS' USAGE BEHAVIOR

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Abstract

Based on a review of previous studies, several variables associated with online knowledge community participators' usage behavior were formulated and tested through a self-administered questionnaire among Chinese educational organizations. From theoretical viewpoint, many of the research performances were reported in previous theoretical discussions were conducted in the context of western societies were confirmed. However, there were new findings related to significant direct, indirect, and total effects on individual's online knowledge community usage behavior due to the current online educational environment in China were identified through structural equation modeling analysis. And, the practical implications were discussed from the perspective of improving online knowledge community management with positive consequences for their participator's knowledge cognition requirement and especially for explained their online information behavior.

Keywords: Social Cognitive Theory; System Quality, Online Interaction, Personal Outcome Expectancies, Continuance Intentions, Perceived Usefulness, Structural Equation Modeling

Introduction

With the changing of information demand, the current development trends for online information environment is characterized by "User-Centered Design", "Interaction", "Sharing" and "Coordination", which serve as the core development value. It means anyone can be the main body of information

resources to create any form of information resources. As proof, there are various models of online knowledge platform and personal academic spaces such as WikiLeaks, Baidu Knows, and Zhihu, have recently emerged, which cover knowledge discoveries, integrated, application, and instruction (Boyer, 1991). And, those online knowledge communities are no longer just activity is



controlled by “a privileged few”, but also a communication process in a broader context of dialogue across different individuals and teams, which could directly motivate relevant users to do information collaboration, connect, sharing and discovering (“iStockAnalyst Has Merged Into The Tokenist - The Tokenist”, 2020).

However, many of them are not fully aware of the nature of the online knowledge environment and the need for them to do development strategies that will enhance their competitive position and have positive influences on related participators’ usage behaviors although many online knowledge communities have been invested. So, the purpose of this paper is to explore the influence of online knowledge community’s environment and participator’s cognition process on their continued using behavior by social cognitive theory. And, the following three core research questions are expected to explain; (1) what are the component factors that organize the online knowledge community environment; (2) what are the factors that influence the relevant user's intention; (3) and, what are the factors influence the user's continued using behavior.

Literature reviews

The social cognitive theory was promoted by Bandura in 1986, which focuses on the dynamic interaction among personal determinants, behavioral determinants, and environmental determinants. Furthermore, personal determinants and behavioral determinants generate interdependence relationships in his model, which represents the interaction schema always

exists between personal behavior and human cognition that could be changed base on related environmental changes (Bandura, 2000). So, those interaction effects can be understood as;

i. The interaction exists between human cognition and personal behavior presents the cognitive process mediate the effect of feelings on social behavior, which also approve the behavior of the groups (or individual) in the social environment that can improve people’s original cognition process (Bandura, 2009).

ii. The interaction exists between environment and personal behavior explain why the individual (or group) will present different behavior in different environments (Wong & Candolin, 2015). As a part of the environment, the behavior also exerts a significant influence on the environment, which refers to the static and dynamic environment (Bandura, 2002).

iii. Human cognition is examined and confirmed by the environmental determinants and renewed and improved constantly by environment factors (Lerner, 1982; Bandura, 1990). The people’s cognition produces personal attitudes (or intention) also make an impact on environment segmentations (Gangestad & Snyder, 2000).

Then, the basic research concept in this paper is on how the characteristics and mutual relationships among personal behavior, human cognition, and the online knowledge environment factors in social cognitive theory affect the continued using behavior for online knowledge community also exploit a new research channel for new online social networking behavior research. For



further discussion, the research structure can be presented as follows;

Behavioral factors

In social cognitive theory, the behavioral factors are presented as user's continuance intentions and continued using behaviors. Refer to the statements in reasoned action theory, technology acceptance model, and planned behavior theory, intention is an important indicator that is used to present the specific behavior of the users (Ajzen, 1991; Venkatesh & Davis, 2000; Doswell et al., 2011). So, the user's continuance intention for online knowledge community can be seen as an inner compass for predicting user behavior and measuring online conversion rates (Lin, 2007; Gudigantala et al., 2016).

Cognition factors

Cognition factors explain an individual's psychological function in the view of information processing, which is the activity subject cognize social phenomenon and human relations in the society (Sternberg & Sternberg, 2009). And, the main subject presents a desire for perceived performance which is about an individual's behavioral consequences. So, the desire for perceived performance as personal outcome expectancies is an important cognitive factor in social cognitive theory, which refers to the feedback from subjective awareness of behavioral consequences. Then, personal outcome expectancies represent the interaction process for human behavior and subjective cognition. In order words, if the user accesses one online knowledge community makes his outcome expectancies get satisfaction; it will strengthen the user's continuance

intentions. Besides, personal outcome expectancies also could be in material level because the satisfaction degree from outcome expectancies can be used to measure the criterion of a positive real investment return to the related online knowledge community users (王伟军, 甘春梅, 2014). When the personal outcome expectancies are achieved, the perceived usefulness from the related webpage will be increased, conversely, related perceived usefulness will be decreased if the related website can not satisfy the personal outcome expectancies (Zhou, 2011). So, the degree of outcome expectancies satisfaction also is an overall assessment for the related website's contents and service quality because the change of satisfaction degree directly presents the user's continuance intentions (Zhou et al., 2010). Furthermore, in the technology acceptance model, the perceived usefulness focus on the effectiveness of using information service, the perceived ease of use aims at understanding the ease of using the system (Davis, 1989). For now, there is much-related research already indicate the perceived usefulness is a significant variable for predicting online users' attitudes and behavior, while, the effects for perceived ease of use are not obvious throughout the online user's experiences (Venkatesh & Davis, 2000). So, perceived usefulness also is the most important variable for online knowledge community user's behavior determination.

Environment factors

Based on the foregoing context in social cognitive theory, there is a complicated relationship among the human cognitive



process, personal behavior, and environment which interacts with each other. As the details, it shows different representations of individual cognition processes and behaviors make a complex and various environment; by the same token, individual cognition process and behavior are influenced by the surrounding environment because the environment provides the seedbed for their development. So, this paper extracts system quality, the quality of knowledge, and online interaction as the major factors to measure the environment affects the individual behavior's three aspects.

1) System Quality

The system quality indicates the performance and the functionality of online knowledge community, which often appears as the server's stability, extensibility, and ease of use, and esthetic. Furthermore, it is only after the online knowledge community meets those conditions that can motivate the members (or users) in online system to present their strong continuance intentions (Fang et al., 2014).

2) Quality of knowledge

The quality of knowledge refers to whether the exchange information and knowledge in online knowledge community are reliable, integrated, relevant, and usefulness. Generally, when the quality of information; information content; information

expression; information system and information utility concepts of online knowledge community can meet their demand, the users will consider whether this webpage will be sustainable used (张婉, 2015). And, those quality performances will indirectly be influenced affect the knowledge searching intentions by the knowledge searching attitude from the users (Lai et al., 2014).

3) Online Interaction

Refer to the traditional information transmission model on the general website, online knowledge community depends on reliable knowledge; interaction and interplay of the users affect their stickiness and continuance intention (周军杰, 2015). So, the interaction relationship for "user to user" and "user to information" affect the individual cognition process; and another user understands the potential value on the webpage, which decides whether to access this webpage or not- and do information interaction in this system.

Research model and design

Based on former statements from related theories and previous discussions, the proposed conceptual model is shown in Figure1.

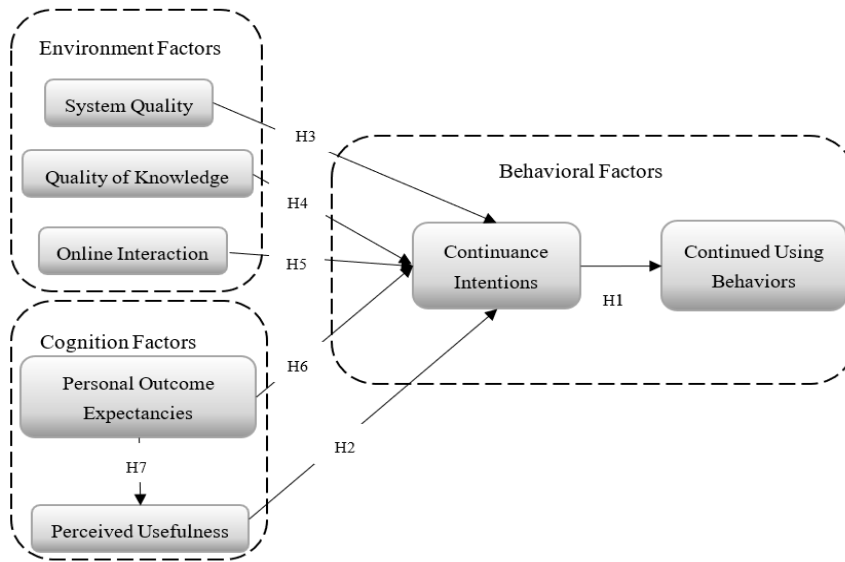


Figure 1 Proposed conceptual model

And, there are 7 research hypotheses associated has been notated for identification with the direct causal effect relationships among the variables as the statements in Table 1 together with the

references from the related previous studies. And, those references are used to identify a logical relationship between two variables involved in the hypothesis.

Table 1 Research hypothesis

| Research Hypothesis | Reference |
|---|--|
| H1: Continuance Intentions has a significant positive direct relationship with Continued Using Behaviors. | Bandura, 2000; Ajzen, 1991; Venkatesh & Davis, 2000; Lin, 2007; Doswell et al., 2011; Gudigantala et al., 2016 |
| H2: Perceived Usefulness has a significant positive direct relationship with Continuance Intentions. | Bandura, 2000; Zhou et al., 2010 |
| H3: System Quality has a significant positive direct relationship with Continuance Intentions | Bandura, 2000; Fang et al., 2014 |
| H4: Quality of Knowledge has a significant positive direct relationship with Continuance Intentions | Bandura, 2000; Lai et al., 2014; 张婉, 2015 |
| H5: Online Interaction has a significant positive direct relationship with Continuance Intentions | Bandura, 2000; 周军杰, 2015 |
| H6: Personal Outcome Expectancies has a significant positive direct relationship with Continuance Intentions. | Bandura, 2000; Zhou et al., 2010; 王伟军, 甘春梅, 2014 |
| H7: Personal Outcome Expectancies has a significant positive direct relationship with Perceived Usefulness. | Bandura, 2000; Zhou, 2011 |



However, there are no research hypotheses in Table 1 concerning the indirect effects, which will be the limitation of this research paper. For further understanding, the structural equation modeling analysis will be used to analyze, report, and identify whether there are any significant mediation effects are existing among those variables.

As following, Table 2 shows the labels for the indicators which were measured on five-point Likert scales and treated as interval scale measures. And, the references from previous studies were used as the source of the current measuring instrument in the following table.

Table 2 Measurement scales and instruments

| | | |
|---|---|--|
| Continued Using Behavior (Single scale) | PU3: Overall, the services in this website are useful for me. | QK4: The knowledge in the website relate to my searching topic. |
| How many hour(s) do you spend on online knowledge community in each week? | System Quality (Latent) | Online Interaction (Latent) |
| Continuance Intentions (Latent) | SQ1: The system in the website is simple to use. | OI1: I am close to the other users in this website. |
| CI1: I plan to continue to use this website and will not quit this website. | SQ2: The system in the website is stable. | OI2: I spend a lot of time to do communication with the other users on this website. |
| CI2: I plan to continue to use this website and will not use another similar website. | SQ3: The speed of response times in the website is fast. | OI3: There are more and more intercommunications between some users in the website and me. |
| CI3: All in all, I will continue to use this website system. | Quality of Knowledge (Latent) | Personal Outcome Expectances (Latent) |
| Perceived Usefulness (Latent) | QK1: The knowledge in the website is easy to understand. | POE1: The service experience from the website has surpassed my expectations. |
| PU1: The knowledge and information in this website can improve my performance. | QK2: The knowledge in the website is accurate. | POE2: The service level from the website has surpassed my expectations. |
| PU2: The knowledge and information in this website can increase my efficiency. | QK3: The knowledge in the website is an integrated system | POE3: Generally, most of my expectations for the website services are confirmed. |

Data preparation and preliminary analyses

Through online questionnaire collection, there were 489 samples were obtained including two universities, one high

school, and two social educational institutions in China. But there were 76 responses were removed from the samples because they have missing values and data entry errors. Finally, the leaving final sample size was 413.

The characteristics of respondents

Table 3 Personal characteristics of respondents

| | Frequency | Percent | Cumulative Percent |
|------------------------------------|-----------|---------|--------------------|
| Occupation | | | |
| Secondary School Student | 66 | 16.0 | 16.0 |
| Undergraduate Student | 202 | 48.9 | 64.9 |
| Graduate Student | 36 | 8.7 | 73.6 |
| Instructor in Secondary School | 15 | 3.6 | 77.2 |
| Instructor in Undergraduate School | 48 | 11.6 | 88.9 |
| Instructor in Graduate School | 21 | 5.1 | 93.9 |
| Others | 25 | 6.1 | 100.0 |
| Total | 413 | 100.0 | - |
| Age | | | |
| 13 to 18 | 50 | 12.1 | 12.1 |
| 19 to 24 | 224 | 54.2 | 66.3 |
| 25 to 30 | 40 | 9.7 | 76.0 |
| 31 to 36 | 36 | 8.7 | 84.7 |
| 37 to 42 | 38 | 9.2 | 93.9 |
| Over 43 | 25 | 6.1 | 100.0 |
| Total | 413 | 100.0 | - |
| Gender | | | |
| Male | 164 | 39.7 | 39.7 |
| Female | 249 | 60.3 | 100.0 |
| Total | 413 | 100.0 | - |

From Table 3, there were over 60 percent of the respondents were females in this research. And, the main age arrangement of the respondents was from 19 to 24 with 54.2 percentages. Among the 7 levels of

educational occupation (or program) being undertaken by the respondents, most are undergraduate students in the university.

Model variables analysis: Validity, reliability and descriptive statistics

Table 4 Model variables analysis: Validity, reliability and descriptive statistics

| Variable and Indicator | | Validity/ Reliability | | | Descriptive Statistics | | | |
|-------------------------------|------|-----------------------|--------------------------------|----------------|------------------------|--------------------|----------|----------|
| | | Factor Loading | Eigen value (% of Variance) | Cronbach Alpha | Mean | Standard Deviation | Skewness | Kurtosis |
| Perceived Usefulness | PU1 | .88 | 6.48 (34.11) | .92 | 3.70 | .96 | -.54 | .14 |
| | PU2 | .90 | | | 3.58 | .96 | -.48 | -.04 |
| | PU3 | .87 | | | 3.61 | .94 | -.62 | .34 |
| Continuance Intention | CI1 | .87 | 2.84 (14.92) | .92 | 3.27 | 1.03 | -.04 | -.46 |
| | CI2 | .90 | | | 3.31 | 1.01 | -.21 | -.27 |
| | CI3 | .84 | | | 3.39 | .97 | -.21 | -.08 |
| System Quality | SQ1 | .88 | 2.24 (11.81) | .89 | 3.13 | .90 | .02 | .08 |
| | SQ2 | .90 | | | 2.93 | .95 | .21 | .06 |
| | SQ3 | .87 | | | 3.10 | .87 | .10 | .38 |
| Online Interaction | OI1 | .88 | 1.71 (8.99) | .88 | 3.76 | .838 | -.10 | -.69 |
| | OI2 | .87 | | | 3.83 | .854 | -.09 | -.89 |
| | OI3 | .89 | | | 4.17 | .841 | -.59 | -.65 |
| Personal Outcome Expectancies | POE1 | .81 | 1.29 (6.81) | .85 | 3.75 | .77 | .10 | -.70 |
| | POE2 | .82 | | | 3.83 | .83 | -.06 | -.85 |
| | POE3 | .75 | | | 3.75 | .81 | -.04 | -.66 |

Note for factor analysis: *Extraction method:* Principal component analysis. *Rotation method:* Equamax with Kaiser normalization. Rotation converged in 6 iterations. Kaiser-Meyer-Olkin measure of sampling adequacy=0.859. Bartlett's test of Sphericity components with eigenvalues less than 1 are not shown. Percentage of total variance explained=76.641%.

Principal component factor analysis was used to examine the construct validity of the measures of the latent variables in the theoretical model, which required indicators to load onto only the component that was proposed to measure with a loading factor of at least 0.4 in magnitude and with an eigenvalue of at least 1 associated with the component (Straub & Gefen, 2004). And, cronbach alpha coefficieFnts were used to exam the internal consistency reliability of the measures of the indicators for each of the latent variables. The final analytical

results in Table 4 present the quality of knowledge in the purposed theoretical model was removed from the further analyzing process because the internal consistency reliability of this variable was questionable (George & Mallery, 2003). Furthermore, as shown in Table 4, the magnitudes of the measures of skewness and kurtosis for each variable and indicator are within the acceptable limits of 3 and 7, respectively, required for the use of maximum likelihood estimation in subsequent SEM analyses (Kline, 2010).

Correlations analysis among profile and model variables

Table 5 Correlations analysis among profile and model variables

| Variables (Indicators) | Profile Variables | | | Model Variables | | | | | | | | | | | | | | | |
|--------------------------|-------------------|-------|------------|----------------------|-------|-------|-----------------------|-------|-------|----------------|-------|-------|--------------------|-------|-------|-------------------------------|-------|-------|--------------------------|
| | Gender | Age | Occupation | Perceived Usefulness | | | Continuance Intention | | | System Quality | | | Online Interaction | | | Personal Outcome Expectancies | | | Continued Using Behavior |
| | | | | PU1 | PU2 | PU3 | CI1 | CI2 | CI3 | SQ1 | SQ2 | SQ3 | OI1 | OI2 | OI3 | POE1 | POE2 | POE3 | |
| Profile Variables | | | | | | | | | | | | | | | | | | | |
| Gender | 1 | | | | | | | | | | | | | | | | | | |
| Age | 0.020 | 1 | | | | | | | | | | | | | | | | | |
| Occupation | 0.023 | 0.726 | 1 | | | | | | | | | | | | | | | | |
| Model Variables | | | | | | | | | | | | | | | | | | | |
| PU1 | 0.093 | -0.04 | -0.083 | 1 | | | | | | | | | | | | | | | |
| PU2 | 0.080 | -0.08 | -0.130 | 0.817 | 1 | | | | | | | | | | | | | | |
| PU3 | 0.078 | -0.05 | -0.089 | 0.761 | 0.794 | 1 | | | | | | | | | | | | | |
| CI1 | -0.069 | -0.07 | -0.065 | 0.254 | 0.233 | 0.259 | 1 | | | | | | | | | | | | |
| CI2 | -0.037 | -0.08 | -0.087 | 0.255 | 0.197 | 0.231 | 0.809 | 1 | | | | | | | | | | | |
| CI3 | -0.036 | -0.10 | -0.080 | 0.281 | 0.234 | 0.272 | 0.764 | 0.787 | 1 | | | | | | | | | | |
| SQ1 | -0.096 | 0.03 | 0.051 | 0.131 | 0.157 | 0.145 | 0.258 | 0.203 | 0.209 | 1 | | | | | | | | | |
| SQ2 | -0.060 | -0.02 | 0.033 | 0.099 | 0.113 | 0.116 | 0.220 | 0.180 | 0.172 | 0.770 | 1 | | | | | | | | |
| SQ3 | -0.034 | 0.02 | 0.075 | 0.093 | 0.086 | 0.113 | 0.308 | 0.256 | 0.224 | 0.705 | 0.719 | 1 | | | | | | | |
| OI1 | -0.031 | -0.03 | -0.017 | 0.127 | 0.039 | 0.055 | 0.187 | 0.198 | 0.272 | 0.087 | 0.052 | 0.086 | 1 | | | | | | |
| OI2 | -0.016 | -0.04 | -0.035 | 0.123 | 0.054 | 0.088 | 0.187 | 0.175 | 0.272 | 0.130 | 0.066 | 0.107 | 0.707 | 1 | | | | | |
| OI3 | -0.027 | 0.00 | -0.015 | 0.154 | 0.109 | 0.069 | 0.142 | 0.133 | 0.212 | 0.099 | 0.012 | 0.036 | 0.715 | 0.709 | 1 | | | | |
| POE1 | -0.055 | -0.07 | -0.056 | 0.280 | 0.233 | 0.268 | 0.416 | 0.353 | 0.435 | 0.338 | 0.284 | 0.275 | 0.278 | 0.325 | 0.271 | 1 | | | |
| POE2 | -0.062 | -0.09 | -0.050 | 0.301 | 0.249 | 0.265 | 0.414 | 0.347 | 0.457 | 0.295 | 0.249 | 0.233 | 0.291 | 0.344 | 0.256 | 0.686 | 1 | | |
| POE3 | -0.088 | -0.12 | -0.093 | 0.336 | 0.294 | 0.318 | 0.425 | 0.408 | 0.443 | 0.385 | 0.317 | 0.318 | 0.247 | 0.275 | 0.215 | 0.654 | 0.631 | 1 | |
| CUB | -0.045 | -0.20 | -0.209 | 0.221 | 0.167 | 0.202 | 0.272 | 0.216 | 0.276 | 0.101 | 0.147 | 0.091 | 0.228 | 0.277 | 0.176 | 0.330 | 0.380 | 0.349 | 1 |

The correlation coefficients among the variables in this research model and variables are used to examine the characteristics of the responders are displayed in Table 5. Furthermore, the coefficients in bold type are statistically significant at a level of 0.05 or less, and shaded cells identify significant positive correlations that referred to the 7 direct causal effects in the theoretical model. As shown in this table, all the variables in this research are significantly positively correlated with each other and there are a few significant correlations between model variables and variables used to measure the characteristics of the participants. Besides, there five additional plausible causal effects are suggested by significant correlations:

System Quality →Personal Outcome Expectancies; Online Interaction →Personal Outcome Expectancies; Online Interaction →Continued Using Behavior; Perceived Usefulness →Continued Using Behavior, Personal Outcome Expectancies →Continued Using Behavior.

SEM Analysis and research model development

Figure 2 shows the results of the SEM analysis of the research model by using AMOS 24 software.

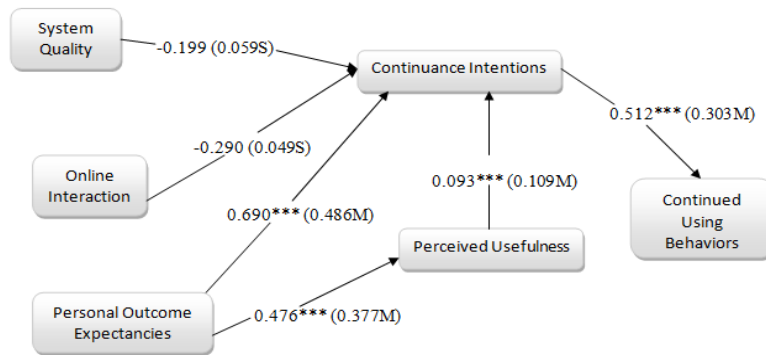


Figure 2 SEM Analysis for research model

In Figure 2: (a) the unstandardized direct effect is shown first followed by *, **, or *** if the effect is statistically significant at a level of 0.05, 0.01, or 0.001, respectively; (b) in parentheses the standardized direct effect is shown with S, M, or L to indicate that the magnitude of the effect is small, medium, or large,

respectively (Cohen, 1988). These notations are used throughout subsequent analyses of effects.

Table 6 shows the values of the range of fit statistics for the theoretical model in Figure 2 as recommended by Kline in 2010.

Table 6 Fit statistics for research model

| Model | N | NC (χ^2/df) | RMR | GFI | AGFI | NFI | IFI | CFI | RMSEA |
|----------------|-----|--|-------|-------|-------|-------|-------|-------|-------|
| Research Model | 413 | 197.795/96 = 2.0604 | 0.063 | 0.943 | 0.919 | 0.953 | 0.975 | 0.975 | 0.051 |
| | | R²: Perceived Usefulness (0.142); Continuanace Intentions (0.343); Continued Using Behaviors (0.092) | | | | | | | |

Note: R^2 is the proportion of the variance of each endogenous variable that is explained by the variables affecting it.

In Figure 2, System Quality and Online Interaction present a small statistically insignificant effect on Continuanace Intentions and from Table 6 the fit statistics are barely satisfactory, especially the values of RMR, RMSEA, and NC. Consequently, it was desirable to seek a model with improved values for the fit statistics and direct effects that were at least medium in magnitude and statistically significant. In the analysis of correlations presented in Correlations

Analysis among Profile and Model Variables, five additional plausible direct causal effects were suggested. These five effects were used to change the model in Figure 2 were made optional and the specification search facility in AMOS 24. Following Kline's statements from this analysis the final model was selected as the one with the smallest value for χ^2/df (Normed Chi-square). The final research model is shown in Figure 3 and its fit statistics are shown in Table 7.

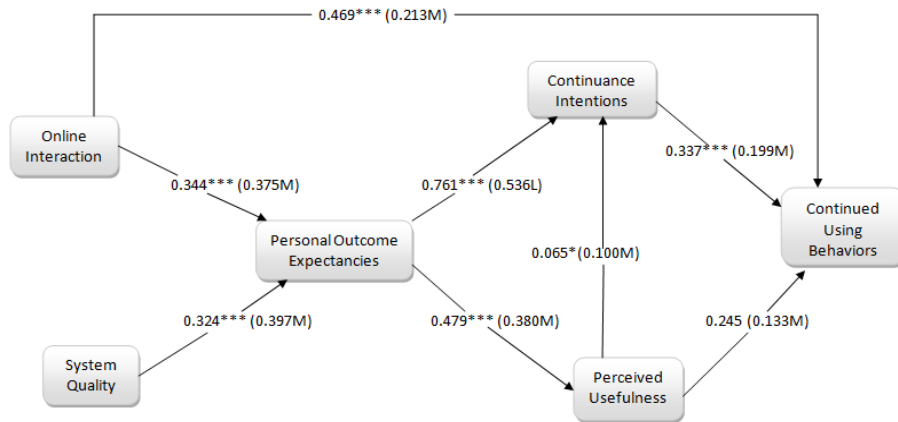


Figure 3 Final research model analysis

In Figure 3: (a) the unstandardized direct effect is shown first followed by *, **, or *** if the effect is statistically significant at a level of 0.05, 0.01, or 0.001, respectively; (b) in parentheses the standardized direct effect is shown with

S, M, or L to indicate that the magnitude of the effect is small, medium, or large, respectively (Cohen, 1988). These notations are used throughout subsequent analyses of effects.

Table 7 Fit statistics for final research model

| Model | N | NC (χ^2/df) | RMR | GFI | AGFI | NFI | IFI | CFI | RMSEA | |
|----------------|-----|---|-------|-------|-------|-------|-------|-------|-------|--|
| Final | | 174.780/96 = 1.8206 | 0.042 | 0.949 | 0.927 | 0.959 | 0.981 | 0.981 | 0.045 | |
| Research Model | 413 | R ² : Personal Outcome Expectancies (0.329); Perceived Usefulness (0.144); Continuance Intentions (0.338); Continued Using Behaviors (0.148) | | | | | | | | |

Note: R² is the proportion of the variance of each endogenous variable that is explained by the variables affecting it.

From Table 7 it is seen that the final model has an acceptable set of fit statistics and that very reasonable proportions of the variance associated with the endogenous variables are explained by the model. Further systematic dropping and adding of

variables and effects based on significant correlation coefficients and the statistical significance and magnitude of other effects did not improve the fit of the final model and so this model was accepted and analyzed in full detail.

New findings

Table 8 Path analysis for final research model

| Variable | Effect | Endogenous Variable | | | | |
|----------------------|-------------------------------|-------------------------------|------------------------------------|---|---|---|
| | | Personal Outcome Expectancies | Intervening Continuance Intentions | Perceived Usefulness | Dependent Continued Using Behavior | |
| Exogenous | System Quality | Direct | 0.323***(0.396M) Nil | Nil SQ-POE-CI 0.246*** (0.212M) | Nil SQ-POE-PU 0.154*** (0.150M) | Nil SQ-POE-CI-CUB 0.100*** (0.051M) SQ-POE-PU-CI-CUB 0.005*** (0.004M) |
| | | Indirect | | | | |
| | | Total | Nil | 0.246*** (0.212M) | 0.154*** (0.150M) | 0.105*** (0.055M) |
| | | Indirect | | | | |
| | | Total | 0.323***(0.396M) | 0.246*** (0.212M) | 0.154*** (0.150M) | 0.105*** (0.055M) |
| | Online Interaction | Direct | 0.344***(0.376M) | Nil OI-POE-CI 0.262 *** (0.202M) | Nil OI-POE-PU 0.164 *** (0.142M) | 0.484***(0.220M) OI-POE-CI-CUB 0.107*** (0.049M) OI-POE-PU-CI-CUB 0.005*** (0.004M) |
| | | Indirect | Nil | | | |
| | | Total | Nil | 0.262 *** (0.202M) | 0.164 *** (0.142M) | 0.112*** (0.053M) |
| | | Indirect | | | | |
| | | Total | 0.344***(0.376M) | 0.262 *** (0.202M) | 0.164 *** (0.142M) | 0.112*** (0.053M) |
| Intervening | Personal Outcome Expectancies | Direct | Nil Nil | 0.761***(0.536L) Nil | 0.476***(0.378M) Nil | Nil POE-CI-CUB 0.310*** (0.129M) POE-PU-CI-CUB 0.015*** (0.010M) |
| | | Indirect | | | | |
| | | Total | Nil | 0.761***(0.536L) | 0.476***(0.378M) | 0.325***(0.139M) |
| | | Indirect | | | | |
| | | Total | Nil | 0.761***(0.536L) | 0.476***(0.378M) | 0.325***(0.139M) |
| | Continuance Intentions | Direct | Nil | Nil | Nil | 0.408***(0.242M) |
| | | Indirect | Nil | Nil | Nil | Nil |
| | | Total | Nil | Nil | Nil | Nil |
| | | Indirect | Nil | Nil | Nil | Nil |
| | | Total | Nil | Nil | Nil | 0.408***(0.242M) |
| Perceived Usefulness | Direct | Nil | 0.079* (0.105M) | Nil | Nil | |
| | Indirect | Nil | Nil | Nil | PU-CI-CUB 0.032*** (0.025M) | |
| | Total | Nil | Nil | Nil | 0.032*** (0.025M) | |
| | Indirect | Nil | Nil | Nil | 0.032*** (0.025M) | |
| | Total | Nil | 0.079* (0.105M) | Nil | 0.032*** (0.025M) | |



Table 8 is designed to present that: (a) all of the effects are positive and statistically significant at a level of 0.01 or less; (b) there are several small effects which are statistically significant and this highlights the importance of considering the magnitude of effects and not only their statistical significance; (c) there are no situations where the direct effect of one variable on another is exceeded by the indirect effect through intervening variables.

According to analysis results, this study noticed personal expectation outcome, as an intervening variable, affects continuance using behavior. Also, online interaction has a significant positive effect on participator's continuance using behavior. And, the occurrence of this phenomenon is the change in people's information behavior which is induced by the modern information environment. At the same time, this research also approves the performance for system quality and online interaction has a significant effect on the participator's expectation outcome.

For further discussion, this trend can be explained as follows:

i. The online participators' perceived interaction and immersion were researched to some extent with the new information technology support (Fornells-Ambrojo et al., 2016). Online knowledge community participators

always present strong attention to perceived interaction means they are willing to control information and join information (knowledge) interaction with a strong intention. If this kind of intention gets satisfaction, there are more opportunities for those online knowledge community participators to get a belonging need, also affect other participators for the sharing values (Shih & Huang, 2012). Besides, the new technology does not only provide a strong tie between related participators and online knowledge community, but also create a platform for the participators, who have similar interest, experience, and research areas, to share their new experience in near real-time. Meanwhile, this kind of change is easy for the participators to do knowledge exchange and sharing with others on a particular subject with a long-time connection because new technology adds social function in information (or knowledge) spreading, which can be considered as an inner experience for the participators, which finally will affect the participators continuance using behavior (Bai & Guo, 2017). Also, related new information technology development and application directly satisfy the participator's requirements and expand new space for current network users' information-seeking behaviors.

ii. This trend presented knowledge utilization more effectively which also



approves the channel for the people to access knowledge and information is becoming more varied because of the technology innovation and changes in information behavior. Also, it has fully displayed a pluralistic knowledge structure and increasing personal information needs. However, information (knowledge) overload has already become a problem now facing each of us under this background. As an example, when information (or knowledge) is overload, the people think it would be difficult to do precise understanding and controlling the objective content and feature of the knowledge (Farhoomand & Drury, 2002). Besides, it is hard to find some expert participators with very authoritative and influential in some online knowledge communities, as a kind of phenomenon, make most of the participators only pay great attention to the searching questions, but neglects accuracy class for the contents. The online knowledge community is a kind of open knowledge-sharing platform with a wide range of participation groups, which presents a diversity to adapt the complicated participation groups. Some people think the online knowledge community is a kind of new strange situation; some of them also think online knowledge communities are a kind of contradictory situation; some people consider it as an unstructured situation.

But by whatever situation, the understandings for online knowledge communities present the participator's ability to adapt to an uncertain situation. Generally, people with high adapting capability for uncertain situations always have very high autonomy ability for information (or knowledge) understanding and acceptance (Anderson, 2001). But, most of the respondents in this research are bachelor and secondary school students who only do their best to seek feedback when they are doing intellectual inquiry (McClain et al, 2015). Also, this group always presents high attention to online interaction comparing with the other age groups. It is perhaps for this reason that most online knowledge community users do much more to post the question for feedback than knowledge exploration.

Practical implications of the findings

Base on the former statements from related theories and previous discussions, the following recommendations should be explored for online knowledge community management and operation.

To do upgrades and technical refreshes for online knowledge community's interface operation system.



With updating and developing of network terminal products, online knowledge community has to modify and optimize the human-machine operation interface and continue to launch a new application system. In the meantime, the online knowledge community intends to preserve the safe and stable virtual environment while allowing the service system to create a different homepage base on the characteristics of different participators' information needs and information behaviors. And only if so, can ensure positive participator's experience for related online knowledge community is constructed.

To create a good connection environment for online interaction.

In the operation process, online knowledge community design should consider how to ratchet up the incentive for active participators; organize some interactions can attract more participation. After all, online knowledge community should select the most influential participators in their respective fields with a special title to create a positive effect on the interaction atmosphere. Beyond that, the administrator in online knowledge community should be required to organize, evaluate the contents is created by the participators as it is produced, make efforts to keep the knowledge

information in online knowledge community is in a state of order.

To form a new understanding of the quality of knowledge.

Based on the characteristics of traditional cognition theory, we just focus on the specialism of knowledge because it is the main reason lies in it to distinguish between the other online mediums and online knowledge community. It also explains why most online knowledge communities have fallen lopsided and simplifying in the field of knowledge spreading, which depends on online knowledge communities' understanding and cognition for knowledge. So, the problem statements for knowledge quality that are shown in this research process can be acceptable. For this, the traditional perception of knowledge should be changed because the current qualified knowledge is managed and produced base on the quality of content, the quality of expression, the quality of effectiveness, and the quality of user satisfaction from the people's knowledge requirements.

Research limitations

Indeed, this research also exposed some limitation as follows:

1) The main data comes from the students at school. Even some lecturers did participation in this research; there still



exist defects about the lack of samples because the responders for the specific variable group are not enough. So, the future study must strengthen attention on the users with working experience will increase the universality of the research.

2) This article mainly discusses the influence of the system environment and interaction behavior on continuance using behavior. But it has not analyzed the factors for knowledge cognition and quality of knowledge. So, the future study should discuss what are the related

factors in the new information environment that could affect knowledge cognition and quality of knowledge.

3) In addition to the influence factors that this research has already discussed, the continuance using behavior also can be affected by other factors, such as trust, investment cost, and use cost, etc. If it is possible, how those related factors and environment affect online knowledge community user's information behavior should be systematically investigated and analyzed in the following studies.

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