

EXPLORING USERS' INTENTION TO USE HEALTH INFORMATION ON A BULLETIN BOARD SYSTEM

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ABSTRACT

This study forms an intact model to present a holistic view of users' intention to use health information on the Internet. A survey was conducted to collect 339 questionnaires to validate the proposed model. The results reveal the following: (a) information presentation is significantly related to perceived readability; (b) information authority, word-of-mouth, and information diagnosticity are significantly related to perceived credibility; (c) information quality fit and information relevance are significantly related to perceived usefulness; and (d) perceived readability, perceived credibility, and perceived usefulness are significantly related to the intention to use information.

Keywords: Information Acceptance, Perceived Readability, Perceived Credibility, Perceived Usefulness, Intention to Use Information

INTRODUCTION

Bulletin Board System (BBS), a popular social network community, allows people to manage and share their health information and experiences of treating their health issues. This creates a rich repository of user-generated content and becomes a popular and important source for users who need information for their health-related decisions (Adams, 2010). The system is dynamic, allowing new threads to be created and new posts to be attached to existing threads (Suzuki & Calzo, 2004). A variety of registered users, including professionals, amateurs, and beginners, can discuss topics freely on the classified boards and contribute their opinions on a certain topic. However, this digital environment has not received significant attention in research (Bond, Ahmed, Hind, Thomas, & Hewitt-Taylor, 2013). Thus, our research focuses on the health-related discussion boards on BBS.

FRAMEWORK AND HYPOTHESES FORMING

Figure 1 shows the proposed framework, and the following sections introduce the theoretical background and hypotheses building.

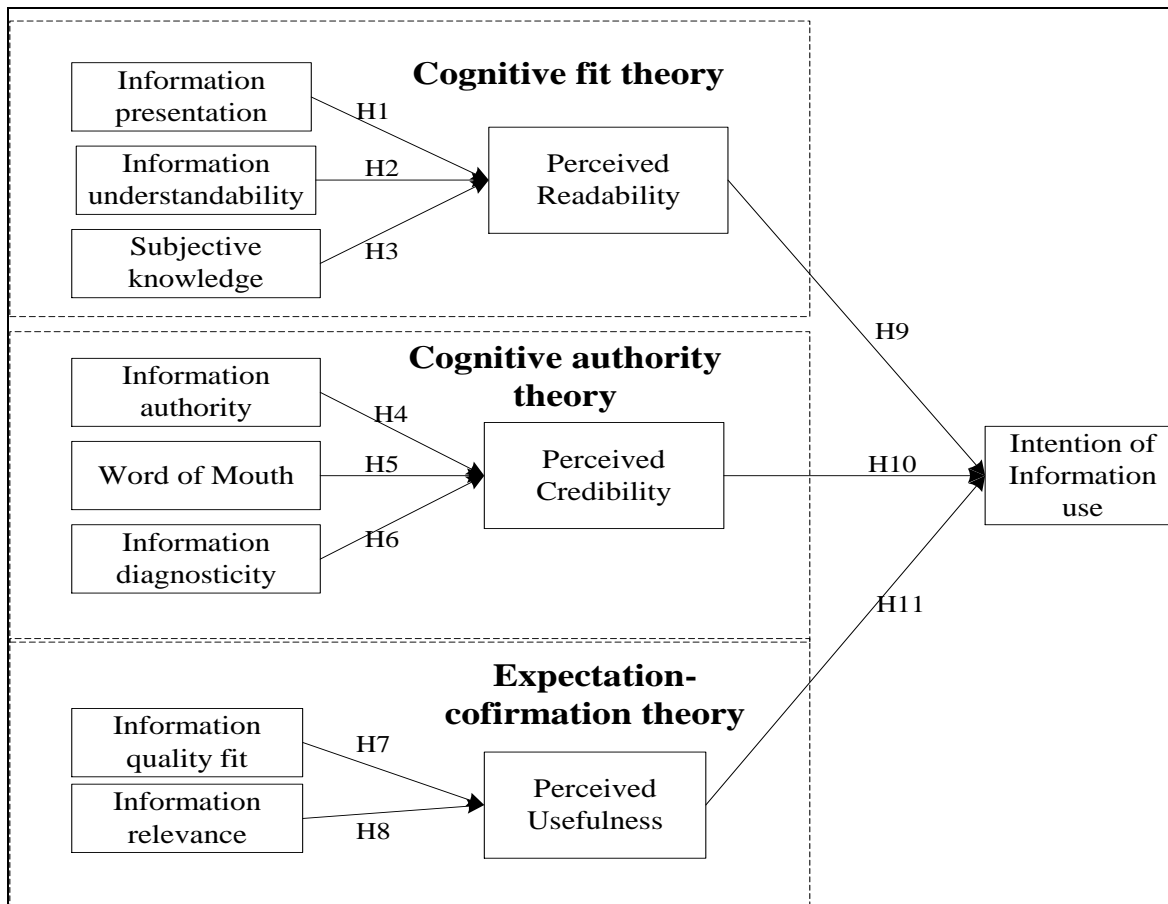


Figure 1 The Proposed Framework and Hypotheses

Cognitive fit theory, proposed by Vessey (1991), explains the fit relationships between information presentation and decision making. The ‘fit’ occurs when information presentation and the decision task are consistent. Mental representation is generated by reacting outside the stimulus, and the results are stored in working memory. Information presentation and the decision task both generate mental processes. If the mental processes are inconsistent, people need to make efforts to transfer information, and this extra work may deteriorate the speed of making decisions or lowering the accuracy of decisions (Rieh, 2002). When fit occurs, users need no additional efforts in handling the discrepancy. Thus, decision making can be more efficient and accurate. We include four factors: perceived readability, information presentation, information understandability, and subjective knowledge (Rajagopalan, Khanna, Leiter, Stott, Showalter, Dicker, & Lawrence, 2011) and build the following hypotheses:

Hypothesis 1: Information presentation is positively related to perceived readability when users evaluate health information on BBS.

Hypothesis 2: Information understandability is positively related to perceived readability when users evaluate health information on BBS.

Hypothesis 3: Subject knowledge is positively related to perceived readability when users evaluate health information on BBS.

Cognitive authority refers to the influences that users recognize as proper because the information is thought to be credible and worthy to believe (Rieh, 2002). It is operationalized as to the extent to which users believe that they can trust the information. It is tough for users to judge the quality of health information due to the lack of unified quality control mechanism. Therefore, by virtue of the method to judge in a realistic world, various referrals from friends, relatives, and referees and the perceptions of publishers' reputations are important resources to judge information quality. Therefore, we conceptualize the factors affecting the credibility of health information as threefold – information authority, word of mouth, and cognitive dissonance (Liu, Liu, & Li, 2012), and build the following hypotheses:

Hypothesis 4: Information authority is positively related to perceived credibility when users evaluate health information on BBS.

Hypothesis 5: Word-of-mouth is positively related to perceived credibility when users evaluate health information on BBS.

Hypothesis 6: Information diagnosticity is positively related to perceived credibility when users evaluate health information on BBS.

Expectation-confirmation theory (Oliver, 1980) presumes that consumers first form an initial expectation and then develop perceptions about the services' performance after consumption. The expectation is confirmed if the perceived efficacy matches their expectation. If not, disconfirmation occurs. The adaptation level is the extent to which products and services excel, match, or lower one's expectation. Unlike aimlessly surfing on the Internet, searching health information is always purposive, such as finding the symptoms and treatments of diseases, advice in terms of medicine, and suggestions for selecting doctors. The information must benefit to solve users' issues. In other words, users must perceive the usefulness of information, and their expectations are confirmed. Thus, we apply three factors – perceived usefulness, information quality fit, and

information relevance (Jeong, 2011), and build the following hypotheses:

Hypothesis 7: Information quality fit is positively related to perceived usefulness when users evaluate health information on BBS.

Hypothesis 8: Information relevance is positively related to perceived usefulness when users evaluate health information on BBS.

The intention to use information refers to the extent to which users tend to apply the obtained health information to their health issues. We assume that perceived readability, perceived credibility, and perceived usefulness are positively related to the intention to use information. Therefore, the following hypotheses are proposed:

Hypothesis 9: Perceived readability is positively related to the intention to use information when users evaluate health information on BBS.

Hypothesis 10: Perceived credibility is positively related to the intention to use information when users evaluate health information on BBS.

Hypothesis 11: Perceived usefulness is positively related to the intention to use information when users evaluate health information on BBS.

SURVEY AND RESULTS

We conducted a survey in PTT health forums (<http://www.ptt.cc/bbs/index.html>) by using the my3q questionnaire platform and provided coupons as gifts to promote the incentives to complete our questionnaire. The duration was one month, and 339 validated questionnaires were collected. Measure scales were adapted from Oliver (1980), Rieh (2002), and Vessey (1991).

The data was conducted using LISREL 8.8. All measures were analysed for reliability and validity using Confirmatory Factor Analysis assessed the correspondence of all items with their respective latent variables. All factor loadings and the measurement errors were both acceptable and significant at $p=0.05$. The CR values of the twelve constructs were between 0.75 and 0.88, and all were above the suggested minimum of 0.70. In addition, the AVE values of each construct were all above 0.5. The pairwise correlation of all constructs was between 0.37 and 0.78, and thus multicollinearity did not exist. Therefore, these values provided evidence that all measures for reliability and validity were met.

Table 1 presents the results of structural equation modelling for both the independent and dependent constructs. The data was conducted using LISREL 8.8 and suggested that

the overall fit of the proposed model was satisfactory. The path estimates showed that all hypotheses were supported except hypotheses 2 and 3.

Table 1 Structural Parameter Estimates and Goodness-of-Fit Indices

| | |
|---|-------|
| H ₁ :presentation → readability | 0.87* |
| H ₂ :understandability → readability | 0.01 |
| H ₃ :knowledge → readability | 0.03 |
| H ₄ :authority → credibility | 0.44* |
| H ₅ :Word-of-mouth → credibility | 0.12* |
| H ₆ :diagnosticity → credibility | 0.21* |
| H ₇ :quality fit→usefulness | 0.38* |
| H ₈ :relevance → usefulness | 0.43* |
| H ₉ :readability → intention | 0.15* |
| H ₁₀ :credibility → intention | 0.26* |
| H ₁₁ :usefulness → intention | 0.41* |
| CFI = 0.98 | |
| RMSEA = 0.08 | |
| IFI = 0.98 | |
| GFI = 0.88 | |
| AGFI = 0.85 | |
| χ^2 (214 d.f.) = 622.50 | |

Notes: All estimates are standardized; * significant $p < 0.05$.

DISCUSSIONS AND CONCLUSIONS

This study proposed an acceptance model for health information on the Internet. The empirical results are as follows: (a) information presentation was significantly related to perceived readability; (b) information authority, word of mouth, and information diagnosticity were significantly related to perceived credibility; (c) information quality fit and information relevance were significantly related to perceived usefulness; and (d) perceived readability, perceived credibility, and perceived usefulness were significantly related to the intention to use information.

Our model incorporated three theories (Cognitive fit theory, Cognitive authority theory and Expectation-confirmation theory) and eleven antecedents to form an intact model to explain users' intention to use health information on BBS. This intact model considered three paradigms: the fit between individual needs and the information, the perceived authority of the authors and platforms, and the confirmation of users' expectation. The distinction between our model and Technology-Acceptance Model (TAM) was that our model focused on the relationships between information itself and users and was independent from the technology. TAM focused on not only technology itself but also the information produced by the technology. This 'free from technology' characteristic can be more readily applicable to a variety of contexts, thus increasing its generalization power, and it can be re-examined or revised for different settings.

The managers of BBS can improve information presentation by tidying up the layout of the screen and adjusting the color allocation to facilitate readability. The system can provide more authors with information (such as grade and post amounts) and highlight useful responses or feedbacks to improve information credibility. To improve perceived usefulness, search engines can be enhanced to present more precise and fitter results for users' needs.

The future plans for this study should be validated on more platforms to display the robust power, such as Yahoo knowledge (tw.yahoo.com) and Taiwan e-Doctor (<http://www.cto.doh.gov.tw/>), although we have obtained brilliant results after conducting a pilot survey on PTT health forum. In addition, perceived readability, perceived credibility, and perceived usefulness only explained the 41% variance of the intention of information use. This implies that there are more factors influencing the intention of information use (e.g. subject/object norm and perceived risk). Thus, incorporating more crucial factors to increase the explanatory power would be a valuable task to improve the model.

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