

Effect of Humanlikeness on Satisfaction with the Recommender System
: Expectancy-Disconfirmation Model Perspective

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Introduction. With the growth of online sales, one important and widely used technique adopted by online retailers is recommender system (RS), a service agent that provides personalized recommendations based on customers' past behavioral data and general product information (Komiak & Benbasat, 2006). RS takes the role of salesperson in online shopping by providing necessary information to assist customers to fulfill their shopping goal. Given the importance of salespeople in customers' satisfaction with the shopping experience (Stanforth & Lennon, 1997), RS that performs a similar role is likely to be an important determinant of online shopping satisfaction. Particularly, salesperson's advice and assistance is more important for clothing than other product categories because clothing is part of the consumer's sense of self (Standforth & Lennon, 1997). Therefore, in the online context, how much RS, a recommendation machine, is perceived as a human (like a salesperson) can be an important predictor of satisfaction. Therefore, the current study aims to examine the relationships between consumers' personality traits, their perception of humanlikeness of RS, and cognitive and affective satisfaction responses to RS.

Literature review and Hypotheses. According to the anthropomorphism literature, when individuals imbue nonhuman agents with humanlike features, they respond to and make judgements of the nonhuman agents as if they were human beings (Aggarwal & McGill, 2007). For example, when individuals perceive a non-human entity as a human than as a machine, they were more forgiving to mistakes made by the non-human entity because humans are fallible (Madhavan & Wiegmann, 2007). Therefore, perceived humanlikeness of RS is likely to impact customer's responses to RS. Specifically, when customers perceive RS as a human (vs. a machine), they may expect RS to provide higher quality recommendations as they expect from a human salesperson. Following the expectancy-disconfirmation theory (Oliver, 1980), the level of expectancy will predict cognitive confirmation, affective response, and thus satisfaction. Additionally, when RS is perceived as humanlike, the RS is likely to increase affective response because customers are likely to respond positively to a human than a machine emotionally. Furthermore, individual's dispositional personality traits (i.e., openness, agreeableness, and conscientiousness from big five inventory and propensity to trust) are likely to be related to one's perception of RS's humanlikeness. The proposed research model is presented below (Figure 1).

Method. An online survey was conducted using previously validated measures with 7-point rating scales. A total of 419 usable data (46% female, mean age=32.77 years, Caucasian 50.7%) was collected through Amazon MTurk. Before answering the questionnaire, the participants were asked to recall and briefly describe their recent clothing purchasing experience with RS.

Result. Structural equation modeling was employed to test the hypotheses. The confirmatory factor analysis (CFA) indicated an acceptable model fit (CFI=.95, GFI=.91, NFI=.90, RMSEA=.044), and convergent validity and discriminant validity of the measurement model was

verified. The fit indices of the structural model displayed an acceptable fit ($\chi^2_{(355)} = 765.63$, CMIN/df=2.168, GFI=.89, CFI=.93, NFI=.88, RMSEA=.05). Figure 1 summarizes the results.

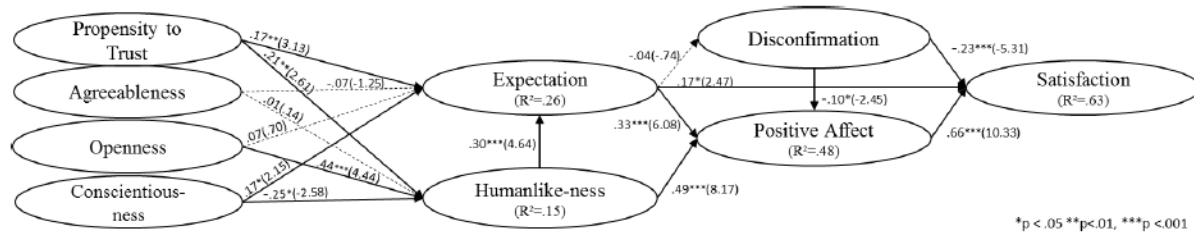


Figure 1. The results of structural equation model.

Discussion. The results confirmed the importance of humanlikeness of RS in online shopping satisfaction. Perceived humanlikeness of the RS was positively related to the level of expectancy toward RS performance and the positive affective response. Furthermore, propensity to trust was an important personality factor predicting both expectation and perceived humanlikeness. As expected, while increased openness was positively related with humanlikeness, conscientiousness was negatively related with humanlikeness. The conscientiousness that reflects hardworking and self-disciplined qualities seemed to contribute in viewing RS as a tool to fulfill the goal. Although conscientious people are more likely to see RS as a machine, they expect higher quality performance level. However, agreeableness failed to predict humanlikeness. This may be because agreeableness, which reflects empathy and compliance, may not be triggered for a non-human RS due to difficulty of perspective taking. Additionally, positive affect was a strong predictor of customer satisfaction. The results of this study suggest online retailers should make their RS humanlike to enhance satisfaction. Also, increasing the level of trust in RS can be an important way to increase satisfaction. The study contributes to the recommender system literature.

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