

## Investigation of Chinese Consumers' Adoption Intention toward Smart Closet: A Perspective of Psychological Needs and Motivations

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Keywords: Smart Closet, Technology adoption, Motivation, Psychological needs, Chinese consumers

**Introduction** With abundant information and products available in today's fashion market, consumers can easily update their wardrobes. However, selecting and matching clothes from a cluttered closet is still a hard task for consumers, as the notion says "a closet full of clothes but nothing to wear" (Roshitsh, 2019). Tackling these problems, Smart Closet has emerged in recent years as an electronic wardrobe assistant, providing functions including virtual wardrobe management, intelligent outfit coordination, and personalized shopping guide (Al-Omar et al., 2013). Additionally, users are able to share their coordinated outfits and get inspiration from others in the Smart Closet community. However, Smart Closet is still in the initial stage of its development and has not been widely adopted by consumers yet. Accordingly, not much is known regarding consumer response toward this new technology. To fill the literature gap, from a motivational and underlying psychological needs perspective, the current study aimed to investigate consumers' adoption intention toward Smart Closet in China, the world's largest fashion market.

**Literature Review** The Technology Acceptance Model (TAM) (Davis et al., 1989) is one of the most profound frameworks frequently employed to explain how and why consumers accept a technology. TAM proposes the key determinants of consumers' technology adoption intention, including perceived usefulness and perceived ease of use (Davis et al., 1989), as well as perceived enjoyment introduced later as an extension (Davis et al., 1992). With the advancement of technologies and consumers' rich experience with information technology, the role of perceived ease of use was found not significant as before, especially in AI-related technology acceptance (Lu et al., 2019). However, TAM does not address the underlying mechanisms leading to consumers' development and appreciation of motivations toward technology adoption. The Self-Determination Theory (SDT) (Deci & Ryan, 2000) postulates that autonomy, competence, and relatedness are three basic human psychological needs, which explain the underlying psychological mechanisms of consumer behavior. In the existing literature, there have been studies that integrate TAM and SDT to examine the role of underlying human needs in consumers' technology acceptance process (e.g. Roca and Gagné, 2008; Lee, 2015; Nikou and Economides, 2017). In line with these studies, as well as the recent studies suggesting the insignificant role of perceived ease of use in consumers' technology adoption, the current study proposed that the three psychological needs will have strong influences on consumers' motivational perceptions of Smart Closet (perceived usefulness and perceived enjoyment),

leading to their adoption intention. Moreover, consumer differences, in particular, gender and fashion consciousness, were also examined in terms of their direct and moderating effects on Chinese consumers' adoption of Smart Closet.

**Method** Data from 346 Chinese consumers were collected via an online survey in the summer of 2020. Convenience sampling was used to recruit subjects via social media postings. Multi-item scales adapted from previous studies were used to measure the main constructs of this study on 7-point Likert scales. Demographic information and general shopping behaviors were also collected. The questionnaire was first developed in English and then translated into Chinese. The two versions were cross-checked by several bilingual students to ensure equivalency. Confirmatory factor analysis (CFA) was conducted first to examine the validity of the measurement model. To test the proposed relationships (Figure 1), structural equation modeling (SEM), independent t-tests, and multi-group comparisons were conducted through AMOS 26 and JMP 15.2.

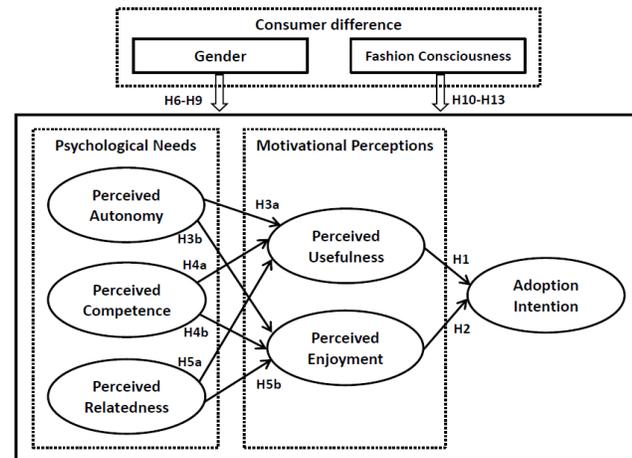


Figure 1. Research Framework

**Results** Descriptive statistics revealed common challenges in consumers' wardrobe management, outfit coordination, and fashion shopping. While most respondents had no prior use experience yet, they indicated positive perceptions and adoption intention toward Smart Closet. With satisfactory model fit for both the measurement model and the structural model, the SEM results confirmed the significant impact of the two motivational perceptions (perceived usefulness and perceived enjoyment) on consumers' intention to adopt Smart Closet, supporting H1 and H2. Among the three basic human needs, perceived autonomy and perceived relatedness showed positive influences on motivations toward adoption (supporting H3 and H5), while the effects of perceived competence were insignificant (rejecting H4). With respect to the impact of consumer differences, the results of independent t-tests suggested that consumers' fashion consciousness exerted influences on their psychological needs, motivational perceptions, and adoption intentions toward Smart Closet (supporting H10-H12), while no significant differences were identified between the two genders (rejecting H6-H8). Multi-group comparisons did not suggest differences in Chinese consumers' adoption process between the two genders (H9). However, the moderating effect of fashion consciousness was partially supported (H13). Specifically, the positive effect of perceived autonomy on perceived enjoyment was found to be significantly stronger for consumers with low fashion consciousness than their high fashion-conscious counterparts.

**Conclusion** This study confirmed the consumer demand for Smart Closet in the Chinese market, evidenced by the noticeable challenges in consumers' daily wardrobe management, outfit coordination, and shopping decisions. By integrating the TAM and SDT models, this study confirmed the influence of basic human psychological needs on consumers' adoption of Smart Closet via shaping their motivational perceptions. The results of this study provided additional evidence in supporting the integration of TAM and SDT for investigating consumers' technology adoption. The results regarding the influence of consumer differences on their adoption process were also insightful for fashion retailers and Smart Closet developers in their target marketing, product development, and marketing communications.

### References

- Al-Omar, N. N., Al-Rashed, N. M., Al-Fantoukh, H. I., al-Osaimi, R. M., Al-Dayel, A. H. A., & Mostefai, S. (2013). The design and development of a web-based virtual closet: The smart closet project. *Journal of Advanced Management Science*, 1(1), 124-128.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace 1. *Journal of applied social psychology*, 22(14), 1111-1132.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268.
- Lee, Y., Lee, J., & Hwang, Y. (2015). Relating motivation to information and communication technology acceptance: Self-determination theory perspective. *Computers in Human Behavior*, 51, 418-428.
- Lu, L., Cai, R., & Gursoy, D. (2019). Developing and validating a service robot integration willingness scale. *International Journal of Hospitality Management*, 80, 36-51.
- Nikou, S. A., & Economides, A. A. (2017). Mobile-Based Assessment: Integrating acceptance and motivational factors into a combined model of Self-Determination Theory and Technology Acceptance. *Computers in Human Behavior*, 68, 83-95.
- Roca, J. C., & Gagné M. (2008). Understanding e-learning continuance intention in the workplace: A self-determination theory perspective. *Computers in human behavior*, 24(4), 1585-1604.
- Roshitsh, K. (2019). 'Digital wardrobe' app lessons: Women's wear daily women's wear daily. *Wwd*, 20. Retrieved from <https://proxying.lib.ncsu.edu/index.php/login?url=https://search.proquest.com/docview/2245433598?accountid=12725>