Consumers' Perceived Risks Associated with Wearable Device Adoption

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Background and Purpose

The saturated mobile device market accelerated brands' quest for innovative products; wearable devices (WDs) came in as an answer, which could be found either as a fashion accessory or embedded in clothes (Choi & Kim, 2016). WDs are often equipped with sensors, touchpads, internet connections, processors, and operating systems that can receive e-mail, text messages, and notifications (Yang, Yu, Zo, & Choi, 2016). The global market of wearable technology (WT) has been experiencing a significant growth in recent years despite several contradictory incidents (Yang et al., 2016), such as Google Glass's failure to gain commercial success. Prominent application categories of WT are wearable fitness devices, smart watches, biometric sensors, augmented reality, and smart clothing, extensively used in healthcare, safety, sports, fitness, and navigation (Choi & Kim, 2016). As the market for WDs continues to grow, it is time to look over the current theoretical understanding of consumers' perception toward WDs, specifically related to the risks associated with adopting WDs. Several types of perceived risk have been sporadically examined in previous WD studies including desired functionality gaps, price barriers, cultural barriers, brand image, and aesthetic barrier. For example, in healthcare and medical WDs, performance expectancy and functional congruence were found to play a more vital role than price or aesthetics barriers (Lunney, Cunningham, & Eastin, 2016). Privacy risk (i.e., the fear of personal data revelation by third parties in an unauthorized manner; Li, Wu, Gao, & Shi, 2016) and health risk (Gao, Li, & Luo, 2015) were also studied. Most of the WD studies imitated the risk perception of other mobile devices and internet usage, appeared as vague in practical implication. However, no literature exists that comprehensively addresses the various types of risk perceived by consumers with regard to adopting WDs, partly due to the lack of good measurements. Perceived risk is an important construct to understand consumers' purchase behavior toward WDs because when they perceive higher risks than benefits of a WD, they may form a negative intention toward adopting the WD (Gao et al., 2015). The purpose of the present study is to address the aforementioned literature gap by qualitatively exploring varying types of risk that consumers associate with adopting WDs as the initial step to develop a measurement for assessing consumers' perceived risk associated with WD adoption.

Method

We used a content analysis approach to explore risks that consumers perceive about using WDs. First, questions and answers relevant to the risks of purchasing or using WDs posted by users on *Quora*, an online Q&A platform, were collected employing such keywords as wearable technology, wearable devices, risks, and privacy, in different combinations. A total of 5

questions and their 17 answers relevant to WD risks were identified through the Quora search. Second, from Amazon.com, we collected negative product reviews posted by consumers who gave 1 out of 5 points for a WD brand, *Fitbit*. A total of 133 text segments (from Quora answers and Amazon product reviews) constituted units of analysis for the content analysis. Two coders categorized each unit into one of seven coding themes: product performance, aesthetics/style, motivation, financial, physical, privacy, and brand. The initial inter-coder reliability was 73.2%, which then reached 100% through negotiation between the coders on the disagreed-upon codes.

Results and Discussion

Product performance was the most frequently expressed risk theme (f = 62), addressing consumers' concern about the product functionality expectancy of a WD such as product lifespan, damage resistance, and high battery life (Gao et al., 2015). Product aesthetics/style concern (f = 18) was the second most often expressed risk theme for many people used WDs as fashion accessories (Choi & Kim, 2016). Financial risks (i.e., concerns associated with product price) and motivation related to learning how to use a WD were addressed by 15 and 14 content units, respectively. Surprisingly, privacy risks and physical risks received less attention, with only 13 and 10 units, respectively. Brand related concerns (f = 2) received the least attention among these themes.

Implications

The positive prospect and high market potential of WDs cannot be achieved if consumers have a negative attitude toward the product due to high risks they perceive related to the product's performance failure, aesthetics, financial investment, privacy, or physical harm. Little research has been done on user acceptance and risk perceptions about WDs because WT is still in the very early stage of commercialization. The current study attempts to fill this literature void by exploring the types of risk consumers may perceive related to the adoption of a WD. In doing so, findings of this study reveal potential risk concerns that should be taken into consideration in future studies. Furthermore, this study demonstrated the necessity of a valid measurement to assess consumers' perceived risk associated with adoption of WDs and other wearable technology. The current study will stimulate future empirical research to examine the role of various perceived risks resulting in consumer outcome variables such as satisfaction, attitude toward WD, and intentions to purchase and use a WD.

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