International Journal of Hospitality Management 51 (2015) 1–7

Contents lists available at ScienceDirect

International Journal of Hospitality Management

journal homepage: www.elsevier.com/locate/ijhosman

Wearable technology in service delivery processes: The gender-moderated technology objectification effect☆

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ARTICLE INFO

Article history:
Received 28 January 2015
Received in revised form 19 August 2015
Accepted 19 August 2015

Keywords:
Wearable technology
Technology objectification effect
Person sensitivity bias
Employee gender

ABSTRACT

In the current research, we investigate how employees' adoption of wearable technology (i.e., a front-line employee using Google Glass for a hotel check-in) influences consumers' service encounter evaluations and revisit intentions. Building on the theoretical frameworks of technology objectification effect, person sensitivity bias and gender stereotypes, we find that wearable technology has a differential impact on service evaluations based on the employee's gender. Study 1 demonstrates that for female employees, the adoption of wearable technology leads to more favorable customer evaluations in service failure encounters. Study 2 shows that for male employees, the adoption of wearable technology leads to less favorable customer evaluations in service success encounters. We discuss theoretical and managerial implications of these findings.

1. Introduction

Recently, wearable technology (e.g., Microsoft HoloLens, Google Glass, Oculus Rift, Samsung Watch) has gained an increasing amount of attention from consumers; likewise, hospitality managers have recognized its potential benefits in service contexts (PricewaterhouseCoopers, 2014). In the hospitality industry, where efficient and seamless service delivery is critical to business success, wearable technology is regarded as "the next big thing" (PricewaterhouseCoopers, 2014; p 49) that will offer a competitive opportunity and thus should be incorporated into strategic plans. In fact, some major airline and hotel companies have already begun to adopt wearable technology in line-level service operations (Maxine, 2012; McGee, 2014).

Despite widespread interest in wearable technology among members of the hospitality industry, scholarly research on how wearable technology affects the service delivery process is lagging. A particularly important and interesting topic for examination is consumers' responses to the adoption of wearable technology in frontline service encounters. Specifically, does the adoption of wearable technology enhance consumer evaluations of the service experience? How does wearable technology affect consumer evaluations in service failure situations? In addition, does the gender of the front-line employee matter? These questions have not been adequately addressed in the extant body of hospitality literature and hence are the motivation for the current research. Answers to these questions could provide critical guidance for hospitality managers who must assess the value of wearable technology in line-level service operations.

Theoretically, our research contributes to the growing stream of research on technology-infused service encounters (Bitner et al., 2000; Bolton and Saxena-Iyer, 2009; Parasuraman and Grewal, 2000; Wünderlich et al., 2013). Focused on a new form of technology innovation, wearable technology, our work highlights the importance of human–technology integration and introduces a novel theoretical perspective to understand the impact of technology on customer perceptions of service employees: *technology objectification* (Haslam, 2006; Lum, 2011; Lum et al., 2011; Lum et al., 2012; Lum et al., 2014). We propose that the close attachment between wearable technology and the human body could diminish the human characteristics of the technology adopter and cause others to view the individual more like a non-human object (Haslam, 2006; Lum, 2011, Lum et al., 2011; Lum et al., 2012; Lum et al., 2014). Based on the theory of person sensitivity bias (Moon and Conlon, 2002), we propose that, when service employees are objectified by the wearable technology, consumers will

☆ This study was supported by the Marriott Foundation.
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http://dx.doi.org/10.1016/j.ijhm.2015.08.010
0278-4319/

derive less extreme service evaluations across success and failure service encounters. Further, such an effect could be influenced by employee gender.

To summarize, we investigate the joint impact of three variables: the use of wearable technology (with wearable technology vs. without wearable technology), the outcome of service delivery (success vs. failure) and the gender of the service employee (female vs. male) on consumer evaluations of a hospitality service experience. We chose Google Glass as the context of this research, as Google Glass is one of the first wearable technologies that were adopted by hospitality firms such as Fairmont Hotels and Virgin Atlantic (Maxine, 2012; McGee, 2014). In the rest of the article, we first review and synthesize relevant streams of literature to propose our theoretical predictions. Then, we present findings from two empirical studies that were used to test our hypotheses. Finally, we discuss theoretical and managerial implications, limitations and directions for future research.

2. Theoretical background

2.1. Technology in the service encounter

Technology is playing an increasingly important role in the service delivery process (Bitner et al., 2000; Bolton and Saxena-Iyer, 2009; Parasuraman and Grewal, 2000; Wünderlich et al., 2013). Empirical work on the topic can be categorized into three major themes. First, a school of research examines the impact of technology adoption on customers' service experiences and suggests that technology innovations might be a double-edged sword (Mick and Fournier, 1998). While the adoption of technology enhances operational efficiency (Kokkinou and Cranage, 2013), facilitates value co-creation (Šerić et al., 2014) and contributes to increased profits (Hua et al., 2015), it may create customer frustration (Zhu et al., 2013) and diminish rapport building with service providers (Giebelhausen et al., 2014).

A second stream of research highlights consumers' motivation and readiness to use technology in service encounters (Mattila and Mount, 2003; Morosan and DeFranco, 2014). The Technology Readiness Index (Parasuraman, 2000; Parasuraman and Colby, 2015) measures people's propensity to embrace and use technologies in service encounters. Consumers' intention to use or accept technology could also be influenced by design factors such as perceived usefulness and playfulness (Lee et al., 2012), and consumers' cultural identity (Westjohn et al., 2009).

Finally, a third stream of research involves technology adoption by the service organization (Lam et al., 2007; Li et al., 2012; Wang and Qualls, 2007). As technology makes important contribution to firms' strategic competitiveness, some conceptual work has been done to understand the process of technology adoption in hospitality organizations (Wang and Qualls, 2007). Previous research reveals that perceived IT beliefs, task–technology fit, attitude, self-efficacy, and subjective norm jointly influence hotel employees' intention to adopt technology (Lam et al., 2007). In addition, research shows that technology can help facilitate management learning in hospitality organizations (Li et al., 2012).

2.2. Wearable technology and the technology objectification effect

Wearable technology or wearable devices can be defined as clothing and accessories that incorporate computer and advanced electronic technologies (Tehrani and Andrew, 2014). From the iWatch to the Fit Bit, this emerging stream of wearable devices has truly revolutionized how we interact with technology and with each other. Over the past several decades, this line of technology innovation has quietly infiltrated many aspects of our daily life. Underexplored in the hospitality literature, the topic of wearable technology has already received significant scholarly attention in other fields. While the majority of previous work has focused on the acceptance of wearable technology in fields such health care (Lukowicz et al., 2004), biomechanics (Veltink and De Rossi, 2010) and engineering (Lum, 2011; Lum et al., 2011; Lum et al., 2012; Lum et al., 2014; Park and Jayaraman, 2003), there is no research on how wearable technology influences third party perceptions of its human adopter. Since an increasing number of hospitality firms are considering the adoption of wearable technology to better serve their customers, examining consumer perceptions of this phenomenon requires urgent scholarly attention.

A defining characteristic of wearable technology is its close physical attachment to the human adopter (Veyrat et al., 2008). Such close attachment suggests that wearable technology is likely to influence third party perceptions of its human adopter (PricewaterhouseCoopers, 2014; Tehrani and Andrew, 2014). Translated to our context, the use of wearable technology by front-line employees will influence consumer perceptions of the employee and their overall service experience.

In the current research, we focus on one specific effect of wearable technology on its human adopter: *technology objectification*. As the opposite of anthropomorphism (i.e., attributing human-like traits to non-human agents such as machines and robots; Aggarwal and McGill, 2007; Epley et al., 2007), *technology objectification* (also noted as technomorphism) refers to the cognitive process of perceiving human beings as machine-like (Caporael, 1986; Haslam, 2006; Lum, 2011; Lum et al., 2011; Lum et al., 2012; Lum et al., 2014). In the current research context, this means that consumers are likely to perceive an employee wearing Google Glass more as an object than as a person.

Theoretical and empirical support for the *technology objectification effect* includes, but is not limited to, the following streams of research. First of all, as highlighted in the social embodiment literature, the close coupling between technologies and human bodies blurs the device-user boundary and creates integral perceptions (Montague and Matson, 1983; Veyrat et al., 2008). In addition, scholars who have studied dehumanization have identified technology as a major driver of dehumanization processes (Haslam, 2006; Montague and Matson, 1983). Researchers have argued that technology could impair users' human characteristics such as emotional responsiveness and interpersonal warmth (Haslam, 2006). Last but not least, the technomorphism literature provides direct empirical evidence for the phenomenon. In a series of studies, Lum (2011) documented the technomorphism effect with both impression rating and eye-tracking data: wearable technology makes its human adopter look more machine-like and less human. Based on previous findings as summarized above, we argue that when adopted in frontline-level service delivery, wearable technology is likely to impose a technology–objectification effect on service employees.

2.3. Less extreme service evaluations: the person sensitivity bias

Based on the arguments in the above section, we argue that the technology objectification effect will result in less extreme service evaluations across service failure and service success encounters. Such an argument is derived from the theory of person sensitivity bias (Moon and Conlon, 2002). Reflecting the adage that individuals get too much credit when things go well and too much blame when things go poorly, the person sensitivity bias consists of a person positivity bias when performance is good and a person negativity bias when performance is bad (Campbell, 2007; Kwak et al., 2015; Moon and Conlon, 2002; Scherer et al., 2015). According to this theory, people tend to evaluate human beings more favorably than