Chapter 7
From Entertainment Device to IoT Terminal:
Smart TV Helps Define the Future Living in Smart Home

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ABSTRACT

Following the trend of home appliances and devices being growingly interconnected into the Internet of Things (IoT) system, smart TV helps define the future of human living as part of the smart home IoT system. This research explores viewers' perceptions toward four emerging interactivity functions of smart TV: the interaction between viewers and TV functions, between viewers and friends, between viewers and programming, and viewers' interaction with products appearing in TV shows. The technology has been mature to provide the four interactivity functions, though they are yet to be adopted by all smart TV sets so far. Our research shows that the viewer's residence was a significant moderator in the preference for the interactivity functions. Viewers from developed regions enjoyed the four functions more than those living in underdeveloped regions. Social media habits and the power usage of information and communication technology are positively associated with the preference, while need for cognition, age, and gender had little effect.

INTRODUCTION

Smart TV, functioning as part of the Internet of Things (IoT) system in a smart home, helps define the future of human living in the IoT era. Watching TV has remained as an indispensable part of human communication since color TV was introduced to the world in the 1950s. TV viewing has had an enormous impact on viewers' social life, whose influence spills over onto a spectrum of social activities, in

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particular, the perception of social reality (Robinson, 2011). Indeed, new functions and services were added to modern TV sets like remote control, voice control, video streaming and TV apps. But watching TV itself did not experience lots of significant changes until the pervasive use of information and communication technology (ICT) (e.g., smartphone, social media) and the rise of IoT. People used to sit in a couch and wait for TV programs aired on a fixed schedule, during which little interactivity happened with the content. A new trend of TV viewing emerges when social TV appears, during which people may choose to co-view TV content and social media information simultaneously (Doughty, Rowland, & Lawson, 2011). While watching TV, viewers today tend to multitask on smartphones, tablets, or laptop computers so to stay social with friends by sending tweets, sharing photos, chatting online, and post comments (Cohen & Lancaster, 2014; Doughty et al., 2011). A survey shows that 87% of viewers using a second screen device when watching TV (Flomenbaum, 2015). The phenomenon indicates that audiences seek to be an active user of information, rather than being a "couch potato" who received information in a passive way.

Guided by the literature (Cohen & Lancaster, 2014; Hunt, 2014; Shah, Hanna, Bucy, Wells, & Quevedo, 2015; Shin, 2016), this chapter aims to access four proposed interactivity functions and explores viewers' disposition and preferences toward them in the context of the (ICT power usage, personality traits and demographics. The interactivity functions under study represent the future development of TV industry as they facilitate viewers' interaction with 1) smart TV, 2) online friends, 3) TV content, and 4) shopping for products appearing on TV. Some current smart TV sets may have one or two of the above functions, but none had all the four features so far. Research on the interactivity functions should shed light on our evolving TV viewing habit and a better understanding of the smart TV role in the smart home IoT system.

The Rise of Smart TV

Smart TV is defined as "technological convergence between computers, television sets, and set-top boxes integrated with online connectivity", providing "internet service, online interactive media and on-demand streaming media" (Wang & Chen, 2018, p. 87). In reality, smart TV, also known as social TV, offers a mediated TV viewing experience incorporating watching TV and staying connected online at the same time, which is "a rewarding social experience" due to the enhanced social interaction (Cohen & Lancaster, 2014, p. 512). Prior studies mostly examined smart TV by treating it as a co-viewing practice of TV programming and social media information, during which a second screen like a smartphone, a tablet, or a laptop computer is involved (Cohen & Lancaster, 2014; Shin, 2009; Shin et al., 2013). In this scenario, viewers are multitasking on a TV screen and ancillary devices. Few studies, however, had examined the phenomenon by studying how viewers interact with TV content and friends on the same TV screen partly due to the fact of limited interactivity on smart TV.

To attract social media users, TV manufacturers have worked hard to make their products stay relevant in the living room as an entertainment and information center (Shin et al., 2013). This requires their TV sets to be growingly connected with the Internet and integrated with the IoT system. Smart TV thus represents the trend of technological convergence that combines computers, set-top boxes and TV sets to bring viewers an interactive viewing experience. Albeit researchers recorded a slight drop in TV watching among young people, the Internet has been found enhancing TV viewing due to the interactivity functions on smart TV (MarketingChart, 2014). The new trend endorses the importance of critically studying viewers' perceptions of interactivity functions on smart TV.