Determinants of mobile value-added service continuance: The mediating role of service experience

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ABSTRACT

In previous research, MVAS subscribers have been regarded as technology users. By adopting the service-dominant logic perspective from the service management discipline, this study proposes and empirically tests a model integrating both technology user and service consumer perspectives, emphasizing the role of service experience in MVAS continuance. The findings show that both technology excellence and service experience are principal determinants of MVAS continuance intention. Moreover, this study proposes the second-order factor structure of service experience and demonstrates the mediating role of service experience on the relationship between technology excellence and MVAS subscribers' continuance intentions. The theoretical and practical implications are discussed.

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1. Introduction

The development of mobile telecommunication technologies coupled with the rapid growth in the mobile phone subscriber base has contributed to the ongoing popularization of mobile telecommunication services. The International Telecommunication Union (ITU) estimated the global mobile phone subscriber base to reach 6.9 billion by the end of 2014, representing a worldwide penetration rate of 95.5 percent [57]. With such a high acceptance of mobile telecommunication services, mobile value-added services (MVAS) have become increasingly important for mobile network operators because the conventional voice service tariffs continue declining [46,117]. MVAS has also contributed to the ARPU (average revenue per user) as another source of corporate revenues and profits [14]. The adoption and continuance of MVAS have therefore drawn the attention of practitioners as well as researchers.

The emphasis of prior research on mobile services adoption and continuance was predominantly on notions of instrumentality. This perspective sees technology as providing useful functionalities and instrumental values to enhance users' performance in task achievement [29]. Researchers have thus focused on instrumentality and cognitive beliefs that drive usage behavior [1]. Cognitive determinants of satisfaction and continuance have been investigated by employing theoretical frameworks such as the technology acceptance model (TAM) [24,25] and the theory of planned behavior (TPB) [4] to study the use of mobile services

[5,66,106,141]. The expectation-confirmation model [89] has also been adapted for studies in information systems and mobile service continuance contexts [11,13,50,53]. These studies presume that conscious decisions based on a series of evaluations on the merits of the technology under study – such as perceptions of ease of use, usefulness, and beliefs concerning system quality and service quality [2,5,17,68,141] – determine users' adoption and continuance intentions. From the instrumental view, MVAS are usually seen as technology products that provide value or utility to subscribers. This view reflects the conventional perspective of the goods-dominant logic (see Lusch et al. [77], Vargo and Lusch [132], Vargo and Lusch [135]), which sees technology as a product to be delivered to users. Mobile phone subscribers are therefore seen as technology users [5,94].

With the proliferation of mobile services, an understanding of technology adoption determinants beyond those focusing on technology user aspects is necessary [86], especially when MVAS subscribers play the roles of both technology users and service consumers [5,62]. Although one other stream of research emphasizes the role of non-instrumental qualities such as experience in driving technology usage [1,29], few studies on MVAS have attempted to integrate both views to provide a holistic picture on the determinants of MVAS continuance. This gap in research requires the incorporation of the service-dominant logic [77,132,135] into MVAS continuance research.

The service-dominant logic view of MVAS continuance complements rather than contradicts the goods-dominant logic view. As indicated by prior research, technology is the means for reaching end-states [42] and an "appliance" that facilitates consumers' enjoyment of service experiences [96,132,134],

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meaning that technology excellence serves as a facilitator for MVAS subscribers to engage in a positive service experience. Furthermore, to understand the factors that lead to MVAS continuance, it is necessary to consider determinants beyond traditional adoption and continuance antecedents, which primarily focus on the influence of technology excellence. There is scant empirical research, however, on the conceptualization of service experience and its effects on users' continuance intentions, particularly in the MVAS context. Borrowing the service-dominant logic from the service marketing discipline, this research extends MVAS continuance research by proposing and empirically testing a model of MVAS continuance that integrates both the effects of technology excellence and service experience. Emphasizing the influence of service experience beyond technology excellence alone, the model represents a novel approach to understanding consumers' continuance intentions toward MVAS. In addition to the objective of unpacking and understanding the complex nature of service experience in the MVAS context, another objective of the current study is to examine the mediating role of service experience between technology excellence and MVAS continuance intention. By incorporating the service-dominant logic perspective into the research model, our findings should contribute to MVAS continuance research on individual consumers in a voluntary and personal context. In practice, our findings could guide mobile network operators in augmenting and managing their MVAS offerings.

The paper is structured as follows. In Section 2, a discussion of the theoretical background of the current study is presented. In Section 3, we propose the research hypotheses. Section 4 describes the research methodology followed by the data analysis in Section 5. In Section 6, we discuss the theoretical and practical implications of our research. Section 7 concludes the paper and suggests future research directions.

2. Theoretical background

2.1. The growing importance of service experience in MVAS

In the mobile telecommunications industry, core services usually refer to voice call services, and MVAS are non-core service options that add value to the basic service offering and may involve a premium charge. Examples of MVAS include a variety of communication, system-based, download and subscription, and Internet access services [33]. (The definition of MVAS is shown in Appendix A.)

With the popularization of smartphones and the rapid development of mobile telecommunication technologies, MVAS have exemplified diversified usage, as they are more than mere technological advancements but rather offer unique service experiences. For example, the 2G technology of mobile telecommunications supports only text [130], whereas 3G and 4G technologies support rich media such as video clips, mobile TV, and streaming media. This expanded capability has enabled diversified forms of mobile services and commerce to become one of the most profitable markets with promising growth [62].

The intense price competition and regulation in mobile termination rates have caused voice ARPU to drop significantly [45]. In the U.S. market alone, the monthly spending on voice services per subscriber has declined by more than $12 from 2007 to 2010 [114]. Because voice service is the core service provided by all mobile network operators, the only way for the operators to compete in voice and messaging services is by lowering tariffs [114]. This circumstance arises from the commodity nature of voice and messaging services, which are widely used by all subscribers but are difficult to differentiate; thus, these services must be sold solely on price.

The industry operates this way because mobile network operators consider voice and messaging services as "goods" rather than "services." The more subscribers make voice calls, the more the operators earn in voice revenue. The problem for operators thus lies in the differentiation from competitors. Due to the number-portability policy, however, subscribers are free to switch to another mobile network operator while keeping the old mobile phone number. Some operators even provide customers a subsidy as an incentive to cover the costs for service transfers from other operators. For the above reasons, even though voice and messaging services may be easy to use and useful, this fact does not guarantee subscribers' continual subscription.

Mobile network operators thus endeavor to provide a rich collection of MVAS to differentiate themselves from other competitors to ensure subscribers' continual usage. However, as mobile technologies and MVAS evolve over time, not all services contribute to profitability as expected. Some MVAS are commonplace among mobile network operators and thus become commoditized and can no longer be differentiated from competitive offerings [14]. For example, mobile network operators' revenues associated with the once-lucrative mobile messaging services are expected to decline in the next few years [45,46,83,111]. SMS is a simple service and has no stringent requirement on latency and data rates. However, declining SMS revenues indicate that merely offering usefulness in serving communication needs, ease of use in operation (i.e., text typing), and high system and service quality backed by the mobile network operators is not enough to retain subscribers. The reasons are twofold. First, the long-term price erosion effect of all-you-can-eat bundles has caused the commoditization of SMS, which not only erodes messaging revenues but also makes the service provided by different mobile network operators non-differentiated. Second, mobile apps such as iMessage, Facebook, Viber, Twitter, and WhatsApp allow users to message each other without extra costs for SMS as long as they are connected to the Internet via their data plan or WiFi connection [46,111]. The failure of mobile network operators to provide a differentiating service experience has caused some MVAS to become commoditized. These services, such as mobile weather forecasting, mobile fortune telling, and SMS, fail to differentiate themselves from competitors' offerings and to contribute to revenues because they are "performing a function" that is also available from other competitors rather than "providing an experience" that is unique to the interaction between the service and the subscriber.

Entering the 3G and 4G eras, a wider collection of MVAS offerings has been available that aims to serve either hedonic or utilitarian subscriber needs. Multimedia capability coupled with high bandwidth transmission in the 3G and 4G eras has radically changed the service experience in contrast to the communication-centric services in the 2G era [3,92]. For example, mobile broadband has contributed to the rollout of new services such as streaming music and video, mobile navigation, and mobile TV. Advancements in global positioning system (GPS) technologies have also enabled a variety of location-based services (LBS). These services focus not only on "performing a function," as SMS does in personal communication, but also on advancing a personal and intimate usage experience in information, music, video, commerce, and socialization [92,130]. During the process of interactions with the services, users gain unique experiences that lure them into continual use.

With the rollout of new mobile technologies and affordable smart handheld devices that have evolved from talk-based devices to mobile computing platforms, MVAS are becoming deeply involved with the service consumption experience. For example, as technologies such as GPS, mobile phone pinging, and network triangulation become more accessible and act in an accurate and real-time manner, LBS have emerged as an indispensable part of mobile commerce [113]. This altered landscape could give