

A profile of mobile service users in a mature market: from “uninvolved pragmatics” to “potential switchers”

Mobile service
users

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Un perfil de usuarios de servicios móviles en un mercado maduro: de “pragmática no involucrada” a “conmutadores potenciales”

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成熟市场中移动服务用户的概况： 从“不参与的实用主义者”到 “潜在的转换者”

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Abstract

Purpose – Mobile services are expanding rapidly, and in this tremendously dynamic environment, companies should provide value-added services to meet users' demand. In this context, the study aims to determine whether different user groups exist in this market and profile them.

Methodology – Based on the information of 568 mobile service users, a research was developed in the context of a mature mobile services market – Spain. A behavior-based cluster analysis is developed by means of confirmatory factor analysis (CFA), followed by two-step clustering. Then, an ANOVA and *post hoc* Tukey tests are conducted to confirm differences among the obtained clusters.

Findings – The study findings show that mobile service users cannot be perceived as a homogenous group, as different users with different behaviors coexist in this market. More specifically, four behavior-based segments emerge in the mobile service sector: “service connoisseurs,” “uninvolved pragmatics,”



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“potential switchers” and “delighted loyal”; “potential switchers” being the most challenging segment for mobile service companies.

Value – This study reports mobile service users’ heterogeneity; and in turn, mobile service managers should consider customers as four different types, instead of considering them as one single customer.

Keywords Mobile services, Behavior, Users, Cluster analysis, Cluster analysis

Paper type Research paper

Resumen

Propósito – Los servicios móviles se están expandiendo rápidamente y en este entorno tremendamente dinámico, las compañías de servicios móviles deberían de proporcionar servicios de valor añadido para satisfacer la demanda de sus usuarios. En este contexto, esta investigación tiene como objetivo determinar si existen diferentes grupo de usuarios en este mercado y aportar su perfil.

Metodología – Sobre la base de información de 568 usuarios de servicios móviles se lleva a cabo una investigación en el contexto de un mercado de servicios móviles maduro –España-. Se lleva a cabo un análisis clúster basado en el comportamiento de los usuarios, mediante un análisis factorial confirmatorio (CFA), seguido de un análisis clúster bi-etápico. A continuación, se realizan un test Anova y un test pos hoc de Tuckey para confirmar las diferencias entre los grupos obtenidos.

Resultados – Los resultados de la investigación muestran que los usuarios de servicios móviles no pueden ser percibidos como un grupo homogéneo, ya que en este mercado coexisten diferentes usuarios con diferentes comportamientos. Más específicamente, cuatro segmentos de usuarios surgen en el sector de los servicios móviles basados en su comportamiento: “*conocedores del servicio*”, “*pragmáticos no involucrados*”, “*potenciales cambiadores de servicio*” y “*leales encantados*”, siendo “*potenciales cambiadores de servicio*” los que presentan un mayor desafío las empresas de servicios móviles.

Valor – Este estudio muestra la heterogeneidad de los usuarios de servicios móviles, y por tanto, los gestores de los servicios móviles deben considerar a sus clientes como cuatro tipos diferentes, en lugar de considerarlos como un único tipo de cliente.

Palabras clave Servicios móviles, Comportamiento, Usuarios, Análisis clúster

Tipo de artículo Trabajo de investigación

摘要

研究目的 – 移动服务正在迅速扩张, 在这个巨大的动态环境中, 企业应该提供增值服务来满足用户的需求。在此背景下, 本研究旨在确定该市场是否存在不同的用户群体, 并对其进行分析。

研究方法 – 基于568名移动服务用户的信息, 在一个成熟的移动服务市场 (西班牙) 的背景下开展了本次研究。通过确认性因子分析 (CFA) 进行基于行为的聚类分析, 然后进行两步聚类。最后, 方差分析和事后Tukey检验被用于确认获得的聚类之间的差异。

研究结果 – 研究结果表明, 移动服务用户不能被看作是一个同质的群体, 因为在这个市场上共存着不同的用户, 他们具有不同的行为。具体来说, 移动服务领域可以划分为基于用户行为的四个细分市场: “服务行家”、“不参与的实用主义者”、“潜在的转换者”和“愉悦的忠诚者”。其中, “潜在的转换者”是对移动服务企业来说最具挑战性的细分市场。

研究价值 – 本研究报告了移动服务用户的异质性。反过来, 移动服务管理者应该考虑把客户划分为四种不同的类型, 而不是将他们视为一个单一的整体。

关键字 – 移动服务, 行为, 用户, 聚类分析

1. Introduction

The use of mobile services has increased dramatically in the past decades, and new developments in mobile services continue to grow because of the users’ excitement for mobile technology, the continuing growth of online commerce and the high penetration rate of mobile devices and

smartphones (Wang and Lin, 2012). The fast development of mobile communication technologies influenced the evolution from service companies that traditionally provided voice services to companies providing various mobile value-added services (Kuo and Yen, 2009), such as location-based services, advanced mobile applications, e-mail, instant messaging, texting, entertainment services, Web browsing, digital audio, games, video delivery or video calling (Tseng and Lo, 2011), that are accessible through mobile devices.

Likewise, with the rapid diffusion of technological advances and new communication technologies such as the diffusion of the internet, today mobile services are used by people anywhere and anytime, having a great impact on individuals' lifestyles and everyday routines. For this reason, communication services have received considerable attention in previous studies, previous research being mostly focused on the acceptance of mobile services (Campbell, 2007) and user satisfaction (Leung and Wei, 2000; Kim *et al.*, 2004).

In this context, this study aims to examine whether different mobile service user groups exist in a mature market, and if so, we aim to describe and profile them based on their behavior. More precisely, the main contribution of this research is the empirical analysis of the existence of diverse customer groups in mobile services. However and despite customer segmentation in mobile services being described in previous literature, this study makes two relevant research contributions: on the one hand, the research considers behavioral criteria for segmentation, and on the other hand, the study focuses on a mature mobile service market. Finally, the present research addresses two objectives. In the first place, this study aims to analyze whether different user groups exist in the mobile service market, and in addition, this research aims to provide a comprehensive description and characterization of the user groups identified.

2. Literature review

2.1 User behavior in mobile services

Many studies have examined the use and adoption of mobile services, and some theories have been commonly used to examine the adoption and usage of mobile services. Some of these well-known theories are the technology acceptance model (TAM) (Davis *et al.*, 1989) or the uses and gratifications theory (Katz *et al.*, 1973). On the one hand, the TAM (Davis *et al.*, 1989) reports that individuals tend to use and adopt technologies if they perceive that technology as being useful and easy to use. Despite the great explanatory power of technology adoption, this model focuses on the technological perspective, but does not incorporate the potential influence of behavioral factors (Wang and Li, 2012).

On the other hand, the uses and gratifications theory (Katz *et al.*, 1973) supports that individuals actively use media for social, entertainment and information purposes (Leung and Wei, 2000). As new mobile communication technologies emerge, researchers use the uses and gratification theory to examine users' motivations for their choices of new communication services, because the gratification-seeking view of media adoption is applicable to individuals' motivation and usage of to use mobile services (Lee, 2011). But, this theory does not incorporate individual or behavioral variables to explain the motivations for the use of mobile services.

Today, innovative mobile services are increasingly emerging, and with the advent of the fifth-generation (5G) digital cellular systems, mobile users can transmit data at higher speeds and get instant access to a tremendous amount of information on the internet anywhere and anytime, without temporal and spatial constraints (Zhou, 2012), and accordingly, mobile service companies have developed a great variety of multimedia products and services. More specifically, mobile services have been defined as those services added to mobile networks other than voice services, including texting, instant messaging, applications, games, entertainment and other functions (Wang and Li, 2012). With the advances in mobile technologies, mobile service companies do not

longer primarily compete on voice communication, as mobile services today add value to its users through the convergence of mobile communication and mobile data services (Al-Debei and Al-Lozi, 2014). Consequently, mobile devices have evolved from conventional devices to smart devices with capabilities that resemble more those of desktop computers. Besides, the mobile service demand is very heterogeneous, and consumption patterns are constantly evolving (Zhou, 2012), and for this reason, in the mobile services sector, adding value depends on the ability of service companies to provide users with services that meet their preferences and needs. In the present study, we will address the users' behavior related to mobile voice communication and data services.

On the other hand, mobile services are a technology-based industry, which offer mobility as the main value proposition (Al-Debei and Al-Lozi, 2014). Among the mobile services attributes, some authors such as Wang and Li (2012) highlight *ubiquity*, *usability*, *personalization* and *convenience* and *personalization*. In the first place, the term *ubiquity* is related to the ability of mobile services to enable users to develop transactions and receive information from anywhere and anytime, regardless of their real location (Wang and Li, 2012). In the second place, the attribute of usability refers to the extent to which a specific technology can ensure a positive and pleasant experience, thus satisfying the individual functional and hedonic needs (Venkatesh *et al.*, 2003). Similarly, the attribute of personalization refers to the ability of the mobile service provider to provide tailored services, based on a deep understanding of the users' preferences and needs (Ko *et al.*, 2009). Finally, the *convenience* provided by mobile services refers to the accessibility and agility of mobile services that eliminate the potential constraints caused by time and place (Wang and Li, 2012).

2.2 Mobile service customer types

The theoretical background of the present research is the development of user profiles through segmentation as a means to compare them, and in turn, the segmentation research is conducted to describe and profile the different user typologies. Market segmentation allows the understanding of the common motivations, needs and characteristics of each identified group within a heterogeneous market (Smith, 1956).

There are different ways to segment a market, and the procedure followed in this study will follow a behavioral segmentation, focusing on the actual behavior of mobile service users. There is previous literature reporting the existence of different segments in mobile communication services, but to the authors' knowledge, none of this prior research has focused on the Spanish market.

There is some research regarding segmentation of mobile service users, and these segmentation studies are mostly based on demographic and psychographic variables, focusing either on mobile services in general terms or on more specific services used by customers (Sell *et al.*, 2011). In this context, the work developed by Antonie (2003) considers psychographic segmentation to identify six groups of mobile service customers, described as "uninvolved users", the "new life harmony users", the "adopters", the "intense users", the "voice as link" users and the "forerunners". Later, Bjorksten *et al.* (2007) used the users' needs and their technical capabilities to report the existence of four mobile user segments, namely, the "explorers," the "achievers," the "seekers" and the "connected users."

Similarly, other studies have considered the users' motivations, lifestyles and the mobile service attributes to segment the market, such as the study developed by Mazzoni *et al.* (2007) who described three customer segments: "techno-fun users" who have a high propensity to use mobile services, the "value-driven" users who evaluate the quality – cost relationship of the service and seek for efficient communication when using mobile services, and the "basic users," who make an elementary and essential use of mobile services and strongly value practical aspects of mobile services. Interestingly, some other studies developed customer segmentation

studies based on customer attitudes, like [Sell et al. \(2014\)](#) who proposed three customer segments, labeled as “conservative users,” “medium” and “innovative” users.

Likewise, [Hamka et al. \(2014\)](#) conducted customers’ segmentation in mobile services using relevant metrics from mobile service operators as segmentation variables, as well as customers’ usage variables. Their research reported the existence of four clusters, named as “ignorant users,” “basic users,” “average users” and “information seekers.” Moreover, studies like the one conducted by [Chung et al. \(2016\)](#) have considered the benefits obtained from service users, the mobile service subscription duration and user experience and satisfaction to profile five customer segments that seek and desire different benefits when using mobile services. Among these segments the “segment 1” and “segment 3” are characterized by seeking costs and monetary benefits. Similarly, [Chawla and Joshi \(2017\)](#) consider the type of services used, user attitude and intentions to segment mobile service users, but focusing on mobile banking services. These authors describe three customer groups labeled as “leaders” – who show favorable attitudes and intentions toward these mobile services – the “followers” and “laggards” with less favorable attitudes.

More recently, authors like [Marino and Lo Presti \(2019\)](#) developed customer segmentation focusing on mobile instant messaging services, and based on user attitudes and service experience, as the segmentation variables. Their research indicates the existence of three segments, namely, the “benevolent users”, the “proactive users” and the “hesitant users”, being the “proactive users” the most engaged in these services. Finally, some other segmentation studies use customer value for mobile service companies and customers’ purchasing behavior to develop segmentation, such as the one conducted by [Zhou et al. \(2020\)](#), who describe eight different segments, labeled as “travel users”, “young, interested in games users”, “raising children”, “lottery fans”, “finance and health users”, “global news users”, “modern” and “national defense users”.

2.3 Behavioral variables in the use of mobile services

For the segmentation analysis, the selection of variables was based on previous literature references, in particular marketing research on mobile communication and behavioral variables reported by [Gerpott et al. \(2001\)](#), [Kim and Yoon \(2004\)](#) and [Bigné et al. \(2011\)](#). The involvement variable has been included because previous studies indicate the relevance of user involvement in the service context ([Lundkvist and Yakhlef, 2014](#)).

2.3.1 Value for money. Customer value is often conceptualized in the marketing literature as the consumer’s overall assessment of the utility of a product or service based on perceptions of what is given and what is received ([Zeithaml, 1988](#)). In general terms, value is created when the benefits associated with services are equivalent or exceeding the total price of the service ([Slater and Narver, 2000](#)). More precisely, value for money is a price-related monetary value that denotes a low price compared to other alternatives in the marketplace ([Sheth et al., 1991](#)). Likewise, when adopting an information system, perceived value is related to the effort or financial expenditure required for the benefits obtained ([Hernandez-Ortega et al., 2017](#)) so that customers can perceive value after comparing costs and benefits ([Lin and Lu, 2015](#)).

Regarding mobile services, the perceived monetary value is a key element explaining both the intention to use and the usage level of mobile services ([Kim, 2012](#)). More precisely, previous studies report three variables as the main drivers of customers’ perceived value, which are the mobile network quality, a good value for money relationship and the customer service ([Gerpott et al., 2001](#)). Similarly, other authors such as [Kuo et al. \(2009\)](#) indicate that the service perceived value could be characterized as the evaluation of the mobile service benefits based on the advance sacrifices and *ex-post* perceived performance when customers use these services ([Kuo et al., 2009](#)). Finally, [Lin and Lu \(2015\)](#) reported that perceived value in mobile services is based on mobile

service convenience, service compatibility, security and cognitive effort. Consequently, it can be assumed that customers integrate their perceptions of what they get and what they give up to obtain mobile services.

Further, prior studies support that the intense competition in the mobile services industry has resulted in a decrease on subscription tariffs and prices (Baker *et al.*, 2010). Accordingly, the mobile companies' pricing strategies represent the most important driver of competition in a context where mobile services offered are quite homogenous and poorly adapted to customer needs (Corrocher and Zirulia, 2010). Hence, it seems that what drives competition in this sector is not the provision of innovative mobile services, but the offering of affordable tariff plans. In this vein, authors such as Haque *et al.* (2007) report that when customers select a mobile service provider, price and promotional offers play a key role in the selection. However, in this sector there are only slight differences in the mobile tariffs offered by service providers (Gerpott *et al.*, 2001). In the present research, we assume value for money as the benefits that customers obtain by subscribing the mobile services offered by a specific service provider, which is deemed to be reasonably priced, affordable and offering good value for money.

2.3.2 Corporate image. Corporate image has been identified as an important factor in the overall service evaluation. One of the first conceptualizations suggests that corporate image could be defined as the perception of a company or organization held in the consumer memory so that the corporate image reflects the customer's overall impression and mental image of the company (Grönross, 1988). In addition, other authors such as MacInnis and Price (1987) report that corporate image is the result of a process that stems from ideas, feelings and consumption experiences with a company that are retrieved from memory and transformed into mental images. Similarly, corporate image reflects customers' perception of an organization, which results from one's experience with, or impressions of the company (Andreassen, 2001). Prior research indicates that corporate image is a result of an evaluation process and stems from the individual's consumption experiences that are retrieved from memory (Aydin and Özer, 2005) and is based on customer satisfaction and trust in the company's products and services (Walsh *et al.*, 2009) and on the company's media visibility and size (Ali *et al.*, 2015).

In the mobile services context, authors like Gerpott *et al.* (2001) indicate that customers' willingness to continue a contractual subscription with a mobile service provider is influenced by the extent to which they have a positive image about the company. In fact, customers' perceptions of the service company attributes such as experience, reliability or integrity are crucial (Deng *et al.*, 2010). Interestingly, as technology advances, customers find it difficult to evaluate the quality of mobile services, and in turn, the company corporate image may represent the quality of the services provided (Kim and Yoon, 2004). Moreover, customers cannot fully regulate the service subscription contract with their mobile service provider, and therefore, it is necessary for them to trust on mobile service companies. Therefore, corporate image is a relevant factor for customers to perceive a mobile service company as reliable and trustworthy (Deng *et al.*, 2010).

2.3.3 Involvement with mobile services. According to Zaichkowsky (1985), customer involvement refers to the individual's perceived relevance of an object based on inherent needs, values and interests. The concept of involvement explains the customers' levels of interest, personal motivation or importance toward an object (Zaichkowsky, 1984). Consequently, the level of involvement explains how much time, energy and resources customers devote to the information search and to the purchase process. Likewise, authors like Richins and Bloch (1986) define enduring involvement as an ongoing concern for a product category that is independent of purchase situations and is motivated by the degree to which the product relates to the hedonic pleasure derived from the product. In the marketing literature, this variable has been considered as an individual difference with direct consequences on consumers' purchase and communication behavior (Zaichkowsky, 1985). For example, high involved customers create more durable

attitudes and are less prone to change purchase and consumption behavior (Martínez-García de Leaniz *et al.*, 2019). Involvement with services is defined as the personal relevance and interest consumers ascribe to a service (Celsi and Olson, 1988), being important due to its great influence on the customers' service experiences (Lundkvist and Yakhlef, 2014). Finally, regarding involvement with mobile services, prior studies report that customer involvement can lead to differences in service outcome evaluations (Calvo-Porrá and Nieto-Mengotti, 2019).

2.3.4 Search effort. The search effort refers to the individual's tendency to seek out information about a product category or service. The customers' search effort for information about services and companies makes them easier to evaluate the service before they subscribe it (Methlie and Nysveen, 1999). Likewise, service providers hold a powerful position in the market when they can reduce the cost of information search (Wu *et al.*, 2004), and accordingly, simplified search effort leads customers to believe that their knowledge of alternatives in the marketplace is optimal (Klaus and Zaichkowsky, 2019).

Regarding mobile services for most of the customers, it is somehow difficult to evaluate a mobile service before subscribing it, and accordingly, customers have to spend time and effort to find an acceptable service provider (Lu *et al.*, 2011). So, the search effort is related with the effort and time spent to gather information about mobile services and mobile service providers before subscribing a contract. Further, the mobile services sector provides so much information about mobile services that it is hard to make a purchase or contract decision, and making a choice is even more difficult when customers have limited time to evaluate all the alternatives available (Kasper *et al.*, 2010). However, previous studies highlight that in the context of digital markets, search costs and searching effort have been considerably reduced, thus being less costly for customers to find alternative mobile service providers (Methlie and Nysveen, 1999). Consequently, the potential customers of mobile services may feel that adopting these services does not entail great effort (Methlie and Nysveen, 1999).

2.3.5 Switching intention. Customer switching intention could be defined as the exit or the customer decision to terminate the contract with a particular service company (Stewart, 1998). Likewise, switching intention represents the customer's self-reported likelihood of terminating a current service relationship (Wirtz *et al.*, 2014). In this context, the *expectancy confirmation theory* has been generally adopted to explain customers' decision to switch or to remain loyal (Liao *et al.*, 2017). This theory proposes that customers compare the product or service performance with their prior expectations, and this comparison results in satisfaction or dissatisfaction that, in turn, leads to switching or loyalty (Chih *et al.*, 2012; Gray *et al.*, 2017). So, customer switching intention is linked to customer dissatisfaction with the service (Deng *et al.*, 2010), along with the perceptions of the relative advantage of substitutes (Hsieh *et al.*, 2012) and the attractiveness of alternatives (Liao *et al.*, 2017).

One of the main reasons for customers switching service providers is switching costs (Burnham *et al.*, 2003), which are the costs of switching from one supplier product to another one, which include costs that can be measured in monetary terms, the psychological costs of facing a new company and the effort and time spent searching and evaluating information of alternative service providers (Kim *et al.*, 2004). However, switching service providers even from within continuous contract relationships is easy in the mobile service industry. Besides, switching costs are considered a relevant factor influencing customers' intention to remain in the relationship with a service provider, meaning a barrier to changing service providers (Deng *et al.*, 2010). Accordingly, the higher the switching costs, the more customers are forced to remain with their current service providers.

In the mobile services industry, switching costs could be both exogenous and endogenous (Corrocher and Zirulia, 2010). The *exogenous* switching costs are strongly associated with the lack of number portability, meaning that when the customer changes

mobile service operator, he/she will be changing the phone number. Conversely, and according to [Corrocher and Zirulia \(2010\)](#), the *endogenous* switching costs emerge when mobile service providers try to implement artificial network externalities – such as on net tariffs – implying that calls to customers who use the same operator are cheaper.

2.3.6 Satisfaction. Following [Oliver \(1997\)](#), satisfaction could be conceptualized as an evaluative post-consumption or post-experience judgments, thus meaning that customer satisfaction is an experience-based overall evaluation made by consumers. Similarly, consumer satisfaction could be defined as a “cognitive evaluation of the product or service’s perceived performance, compared with the previous expectations” ([Oliver, 1999](#)). In this context, [Oliver \(1980\)](#) supports that individuals’ intention to continue using a specific service is influenced primarily by their satisfaction with the previous use of that service, and therefore, customer satisfaction is derived from the individual’s experience of using a service.

Later, regarding the mobile service context, [Hu et al. \(2011\)](#) define customer satisfaction as a cognitive or affective reaction that emerges in response to a single or a prolonged set of service encounters. So, customer satisfaction with mobile services can be understood as the overall evaluation and perception when using the mobile services contracted with a specific provider. Further, customer satisfaction with mobile services could be described as an experience-based evaluation on how the customer expectations about the main characteristics of the service functionality have been fulfilled by a specific service provider ([Gerpott et al., 2001](#)).

Previous studies report that user satisfaction with mobile services is strongly related with the call and network quality ([Wang et al., 2019](#)), a good value for money ([Gerpott et al., 2001](#)), efficient customer services, convenient procedures and personalized customer services ([Lee et al., 2001](#)) as well as with service reliability and responsiveness and the meet of customers’ personal needs ([Gerpott et al., 2001](#)). Further, in the mobile services industry, when the customer has a good experience with the service provider, he/she will develop higher levels of satisfaction ([Wang et al., 2019](#)). Consequently, when a customer has a good experience with a mobile service company, customer satisfaction appears and the customer is more likely to remain with this provider and develop customer loyalty, as satisfaction directly influences the continued use of the services ([Kuo et al., 2009](#)).

2.3.7 Loyalty. According to [Oliver \(1999\)](#), customer loyalty could be defined as a deep “held commitment to rebuy or repatronize a preferred product or service consistently in the future”, thus entailing a repetitive purchasing despite situational influences and marketing efforts that have the potential to influence switching behavior. Similarly, service loyalty can be defined as a favorable attitude toward a specific service provider ([Fornell et al., 1996](#)), reflecting the psychological predisposition the consumer has toward a company or service provider ([Roy et al., 2018](#)). Further, a loyal customer is more willing to continue doing business with the company even when prices rise ([Baumann et al., 2012](#)).

In the mobile services context, loyalty is often conceptualized as a favorable attitude toward a specific service provider, leading to a repurchase likelihood of additional services from the same provider ([Turel and Serenko, 2006](#)). In this vein, a large part of the mobile service provider’s effort is aimed at creating and maintaining loyalty among its customer base, given that customer loyalty is a relevant factor in reducing the churn rate ([Kuo et al., 2009](#)). In fact, loyalty positively influences various behavioral outcomes, such as repurchase and customer retention, as well as long-term customer relationships and service continuance intention ([Kuo et al., 2009](#)).

3. Methodology

3.1 Sampling and fieldwork

The research questionnaire was designed to evaluate the behavioral variables of individuals regarding their mobile service usage. The information was captured through a structured

self-administered online questionnaire, and fieldwork was carried out in April 2018. More specifically, a random sampling procedure was developed among service users residing in Spain. This research is developed in the context of a mature market, and the selection of the Spanish market is mainly motivated by the fact that it represents one of the largest mobile service markets in the European Union (EU) with 52.5 million of mobile lines and a mobile penetration rate of 112.9% in year 2017 (ONTSI, 2018).

The research participants were sent an invitation to participate in the study and informing them about the research purpose. In addition, information was sent to the participants about the questionnaire and asking them about their mobile service provider, to gather information regarding the mobile company they have usage experience. The mobile services under consideration in the present research have voice and data services.

Participants were not compensated for their participation in the research, and they were asked to evaluate the variables related to their mobile usage behavior on a five-point Likert-type scale ranging from 1 = “completely disagree” to 5 = “completely agree.” In addition, the last section of the questionnaire collected information regarding socioeconomic and demographic characteristics. Finally, a total amount of 568 valid questionnaires was gathered. Regarding the sample profile, the 52.57% of the participants are female and 47.43% are men. In addition, 38.9% of the participants are between the ages of 31 and 40, while 28% were between 21 and 40 years old. In terms of education level, more than 38% of the participants have secondary education, while 32% have university studies. Regarding the household income, the greater percentage of participants (32%) has an income of €24,000–€30,000 per year. Finally, data showed that all of the participants were frequent mobile service users, indicating that the 97% use their mobile communication services every day.

3.2 Variables and scale development

The research questionnaire was developed based on an extensive literature review on user behavior in mobile services (Table 1). The variable *value for money* was measured using a scale adopted from Kuo *et al.* (2009), and the mobile service companies' *corporate image* was evaluated through a two-item scale adapted from Deng *et al.* (2010). Then, the service *involvement* was measured through a three-item scale proposed by Swilley and Golsmith (2007). Likewise, the users' *search effort* was measured adopting the items proposed by Bigné *et al.* (2011), while the *switching intention* was measured through the scale proposed by Bansal *et al.* (2005). Finally, for the measure of users' *satisfaction*, a four-item scale from Oliver (1997) was adopted; while to measure users' *loyalty*, we used a three-item from Oliver (1999).

4. Results

4.1 Principal component analysis

To determine whether different factors could be grouped under general characteristics, a principal component analysis was developed through varimax rotation (Hair *et al.*, 2010). Eight major factors with eigenvalues of 1 or more were identified, and items with rotated factor loadings of 0.50 or higher were retained, jointly accounting for 78.92% of the cumulative variance. Conversely, two items with factor loadings lower than 0.50 were removed from the scale, namely, IMAG1 and INV1. The measures of sampling adequacy indicate that the correlation matrix for the 21-item scale is adequate: test of Bartlett's sphericity ($\chi^2 = 8,882.751$; $df = 325$; $p < 0.000$) and the Kaiser-Meyer-Olkin criterion show a value of sampling adequacy of 0.940. Finally, the factors obtained from the principal component analysis were named as “value for money,” “corporate image,” “involvement,” “search effort,” “switching behavior,” “satisfaction” and “loyalty” (Table 1).

Variables	Items	Factor loadings	Cronbach α	CR	AVE
VALUE FOR MONEY <i>Kuo et al. (2009)</i>	VM1: My mobile service company offers affordable services	0.774	0.906	0.902	0.710
	VM2: My mobile service company offers a good value for money relationship	0.877			
	VM3: My mobile service company provides me with multiple benefits	0.848			
	VM4: My mobile service company provides value-added services, which are worth for me	0.876			
CORPORATE IMAGE <i>Deng et al. (2010)</i>	IMAG2: My mobile service company has a good image, compared to other mobile service companies	0.858	0.869	0.870	0.768
	IMAG3: My mobile service company has a good image among customers	0.909			
INVOLVEMENT <i>Swilley and Golsmith (2007)</i>	INVOL2: Mobile services are important to me	0.718	0.782	0.815	0.615
	INVOL3: I have great knowledge about mobile services	0.870			
	INVOL4: Mobile services strongly influence my life	0.702			
SEARCH EFFORT <i>Bigné et al. (2011)</i>	SEAR1: I reviewed a great amount of information before contracting mobile services	0.762	0.846	0.850	0.602
	SEAR2: I visited numerous companies and compared different services before I selected my company	0.768			
	SEAR3: I spent a lot of time searching for information about mobile services before I contracted with my company	0.895			
SWITCHING BEHAVIOR <i>Bansal et al. (2005)</i>	SWITC1: I have the intention to switch my mobile services company	0.744	0.715	0.712	0.559
	SWITC2: I regret to have subscribed the contract with my company	0.742			
SATISFACTION <i>Oliver (1997)</i>	SAT1: I am satisfied with the service provided by my company	0.859	0.907	0.902	0.710
	SAT2: My company meets my needs perfectly	0.836			
	SAT3: My company gives me the service I expect from a mobile service company	0.855			
	SAT4: My overall satisfaction with the service provided by my company is. . .	0.886			
LOYALTY <i>Oliver (1999)</i>	LOY1: If I had to contract mobile services again, I would chose the same company	0.879	0.909	0.910	0.781
	LOY2: I consider myself loyal to my mobile services company	0.912			
	LOY3: I will continue my subscription with my company	0.876			

Table 1.
Variables and indicators

4.2 Confirmatory factor analysis

A confirmatory factor analysis (CFA) is developed to confirm the validity of the seven-factor model using Amos 18.0 software. The measurement model fit was deemed satisfactory ($\chi^2 = 715.134$, goodness-of-fit index (GFI) = 0.879, root mean residual index (RMR) = 0.051 and root mean squared error of approximation (RMSEA) = 0.060).

Then, to assess the convergent validity of the model, we considered the standardized factor loadings, which reached values closer or higher than the commonly accepted threshold of 0.70 (Hair *et al.*, 2010). In the next step, to evaluate the reliability of the measurement scale, Cronbach α estimates were calculated. Our results show that all constructs reach Cronbach α values greater than 0.70, and that all of the composite reliability (CR) values are above the accepted threshold of 0.70, and in turn, constructs were considered satisfactory (Hair *et al.*, 2010). Likewise, the average variance extracted (AVE) values were calculated for each construct to assess the discriminant and convergent validity of the scale. The results show that the AVE values ranged from 0.559–0.781, thus indicating an adequate convergent validity of the measurement model (Hair *et al.*, 2010). Finally, according to the Fornell and Larcker (1981) criteria, our findings report that the discriminant validity of the scale is supported, given that the square root of the AVE values of every pair of constructs achieves greater values than the correlation estimates between these constructs, as shown in Table 2.

4.3 Cluster analysis

A two-step cluster analysis is conducted using the obtained factors as the input variables. This clustering technique was used, given that it allows testing similarities and associations between segments without making any assumption on the final number of clusters (Hair *et al.*, 2010). In the first step, a hierarchical agglomerative cluster analysis using Ward’s method with squared Euclidean distances was performed using variable scores to determine if the behavior was homogeneous among participants (Hair *et al.*, 2010). The obtained dendrogram was visually inspected to determine obvious clusters present, and the results indicated that a four-cluster solution was the most appropriate. In the next step, a *k*-means cluster analysis was developed on the four-cluster solution based on hierarchical clustering, showing a correct classification rate of the 87.9%. Accordingly, a four-cluster solution was obtained as the most adequate. More precisely, 196 individuals were included in Cluster 1, 98 individuals were included in Cluster 2, while 136 and 138 individuals were included in Clusters 3 and 4, respectively.

4.4 ANOVA analysis

To determine the differences between mobile service clusters, an analysis of variance (ANOVA) test was developed, considering the behavior variables as fixed factors and participants as a random factor. In the first place, the ANOVA test indicated that the segmentation developed through the cluster analysis was adequate because the *F*-ratios revealed that the clusters differ significantly among them, thus revealing that the obtained four clusters differ significantly in their behavior.

Constructs	Correlation coefficients						
	VM	Corp.	Involv.	Search.	Switch	Sat.	Loy.
Value for money	<i>0.842</i>						
Corporate image	0.565	<i>0.876</i>					
Involvement	0.317	0.282	<i>0.784</i>				
Search effort	0.206	0.184	0.482	<i>0.776</i>			
Switching intention	0.327	-0.552	-0.220	0.482	<i>0.748</i>		
Satisfaction	0.519	0.583	0.301	0.223	-0.689	<i>0.843</i>	
Loyalty	0.623	0.541	0.257	0.179	-0.519	0.584	<i>0.884</i>

Note: The diagonal values in italic represent the square root of the AVE

Table 2.
Matrix of correlations

The multivariate test using Pillai's Trace and Wilks' Lambda were conducted obtaining values of Pillai's Trace = 1.537, $F(78, 16.735)$, $p < 0.001$, and Wilks' Lambda = 0.060, $F(78, 24.776)$, $p < 0.001$, respectively. In the second place, where significant differences were obtained, *post hoc* Tukey analyses were applied. The *post hoc* Tukey tests revealed significant differences between the four segments at the 95% confidence level (Table 3).

Then, chi-square tests were performed to observe differences in participants' responses to each demographic and socioeconomic variable, as well as potential differences in the type of mobile subscription contract and the type of mobile device owned. The results show significant differences in the type of mobile service subscription contract (Table 4).

4.5 Description of clusters

4.5.1 Cluster 1: service connoisseurs. This cluster, the largest of the four groups, identified because it includes 34.31% of the sample ($n = 196$) and is predominantly made up of young users (72.5%), who are 31-40 years old. In addition, the majority of customers in this cluster have university studies (67.5%).

In a context where mobile service users have greater access to a wide variety of mobile, and where numerous service providers are available in the marketplace, these users are characterized by their great search effort, showing that they engage more heavily in information search and service learning. In other words, these users search for great information, visit different mobile service companies to compare different options and invest a great amount of time to decide their subscription offers. Considering that this customer segment reports the highest values for the search effort to contract or subscribe mobile

Variables	Indicators	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Post hoc Tukey test	
		Service connoisseurs ($n = 196$)	Uninvolved pragmatics ($n = 98$)	Potential switchers ($n = 136$)	Delighted loyal ($n = 138$)	F-value	Significance ($p < 0.005$)
Value for money	VM1	2.46	2.78	1.67	4.09	116.240	0.000
	VM2	2.76	3.21	1.70	4.27	203.383	0.000
	VM3	2.74	2.73	1.54	4.22	195.790	0.000
	VM4	3.04	3.33	1.50	4.51	228.988	0.000
Corporate image	IMAG2	3.28	3.45	2.10	3.97	142.774	0.000
	IMAG3	3.24	3.42	1.68	4.45	174.812	0.000
Involvement	INVOL2	3.42	2.25	2.75	4.13	48.841	0.000
	INVOL3	3.19	2.09	2.69	3.58	30.815	0.000
	INVOL4	3.40	2.10	2.72	3.69	24.126	0.000
Search effort	SEAR1	3.82	1.73	2.59	3.72	44.798	0.000
	SEAR2	3.40	1.45	2.32	3.34	43.146	0.000
	SEAR3	3.42	1.40	2.20	3.16	57.085	0.000
Switching intention	SWITC1	3.15	2.25	4.40	1.47	133.546	0.000
	SWITC2	2.41	1.92	3.72	1.10	114.870	0.000
Satisfaction	SAT1	3.12	3.40	1.80	4.78	259.424	0.000
	SAT2	3.24	3.39	1.86	4.82	218.127	0.000
	SAT3	3.35	3.36	1.82	4.50	216.412	0.000
	SAT4	3.24	3.39	1.78	4.56	249.832	0.000
Loyalty	LOY1	3.12	3.49	1.65	4.72	267.721	0.000
	LOY2	3.11	3.32	1.53	4.78	315.426	0.000
	LOY3	3.12	3.41	1.80	4.69	290.152	0.000

Table 3.
Mean values for the four-cluster group solution

Variables	Indicators	Service connoisseurs (<i>n</i> = 196)	Uninvolved pragmatists (<i>n</i> = 98)	Potential switchers (<i>n</i> = 136)	Delighted loyal (<i>n</i> = 138)	χ^2 value	χ^2 test Significance (<i>p</i> < 0.005)
Type of subscription contract	Prepaid card	11.3	2.6	10.4	2.8	4.107	0.006
	Lock-in contract	68.8	89.1	44.5	69.1		
	Free contract	19.9	8.3	45.1	28.1		
Subsidized/not subsidized mobile device	Not subsidized mobile handset	1.3	14.2	28.7	17.8	1.023	0.204
	Totally subsidized handset	14.1	40.4	30.1	53.5		
	Partially subsidized handset	47.0	41.9	39.3	28.0		
	Second-hand purchase	37.6	3.5	1.9	0.7		
Age	Less than 20 years	4.6	8.5	6.2	9.4	0.834	0.612
	21-30 years	6.9	43.7	86.7	51.5		
	31-40 years	72.5	26.3	5.6	25.7		
	41-50 years	15.0	20.2	1.5	10.6		
	Older than 50	5.6	1.3	–	2.8		
	–	–	4.9	–	–		
Household income level (euro/month)	6,000-12,000	9.3	12.5	45.6	40.0	5.702	0.001
	12,000-18,000	24.2	14.2	26.6	28.2		
	18,000-24,000	14.6	27.5	16.3	14.1		
	24,000-30,000	21.2	21.1	2.9	4.7		
	30,000-36,000	17.2	6.5	4.8	6.5		
	36,000-42,000	9.9	13.3	3.8	6.5		
Gender	Female	46.4	56.4	66.6	51.3	2.182	0.088
	Male	53.6	43.6	33.4	48.7		

Table 4. Description of four-cluster group solution (results are shown in %)

services with their service operators, they are labeled as “service connoisseurs”. So, it can be stated that “service connoisseurs” are willing to exert great effort in searching and learning about the mobile service with the best value and best characteristics in the marketplace. One potential reason for their great search effort is that in general terms, individuals tend to reduce the risk and uncertainty associated with their purchase and subscription decisions by collecting as much useful information as they can, and in turn, individuals always tend to collect as much information as possible, when making a purchase or service subscription decision. On the other hand, bearing in mind that most of these customers are young users with university studies, it could be suggested that these users pay special attention to the recent and innovative mobile advanced services, as well as to the availability of applications or personalized services. Likewise, these users may be strongly interested in any mobile service innovation, considering that they are actively seeking information about these services. Additionally, it can be assumed that this customer group is quite busy updating their mobile services and applications and catching up with the latest technological mobile service advances. Compared to other customers, these mobile service users score above the average in service involvement and in satisfaction and loyalty with mobile services. Similarly, they report a moderately high value for switching intention. This could indicate that these users are strongly motivated to learn about mobile services so that when they find more attractive alternatives in the market, they are prone to switch to other companies offering better subscription conditions.

4.5.2 Cluster 2: “uninvolved pragmatics”. This cluster makes up 17.83% of the sample ($n = 98$), being the smallest user group, and interestingly, the majority of these users have lock-in subscription contracts (89.1%), representing the group with the highest mobile subscription duration, which could indicate that this is the most conservative group.

These service users report the lowest mean scores for service involvement, meaning that they are lowly involved with their mobile communication services, and that they the group with least interested in mobile services. Therefore, this group could be characterized by their low involvement and high pragmatism with mobile service, and consequently, they are named as “uninvolved pragmatics.” Maybe these uninvolved users only use mobile services for the most elementary functions of mobile communication services, such as calling or instant texting, and this could be the main explanation for their simple pragmatic use and their low involvement with these services. Similarly, these users show the lowest search effort for mobile services, indicating that they do not waste time getting informed about mobile service providers or comparing offers. One potential explanation is that these customers may be assuming the lack of big differences among mobile services and operators. Likewise, the “uninvolved pragmatics” show moderately high scores for value for money, suggesting that they actively seek for monetary benefits and affordable tariffs when dealing with their mobile service providers. Further, these users report moderately higher values for corporate image, satisfaction and loyalty, meaning that other behavior-based variables also influence their relationships with their mobile service providers.

4.5.3 Cluster 3: “potential switchers”. Mobile service users in this cluster comprise 23.70% of the sample ($n = 136$), being mostly composed by “millennials,” as 86.7% of them are between 21 and 30 years old and shows the greatest percentage of free contracts with the mobile service operators (45.1%) compared to the other segments. In addition, this cluster reports the highest mean scores for switching intention, as well as the lowest scores for company loyalty, and therefore, they are named as “potential switchers.” One reason that may explain their higher switching intention is that these users would be happy switching to other alternative mobile service companies available in the marketplace. Interestingly, the 45.1% of these users have a free subscription contract with their companies, suggesting that

they can switch company without being penalized. One possible explanation is that due to their poor loyalty and great proneness to switch service providers, these customers do not want to be locked-in in a mobile service subscription contract. Additionally, it can be suggested that these users would be prone to switch their company instantly to begin new subscriptions with those mobile service providers that offer interesting services. Therefore, they could be characterized as being strongly disloyal customers. Further, customers in this group experience the lowest values for satisfaction, possibly meaning that they are not satisfied with their actual mobile service companies. Finally, “potential switchers” show the lowest mean scores for value for money, suggesting that they are not especially focused on obtaining a good value for money or affordable tariffs, so it seems that finding a more affordable service offering it not a reason to switch their actual service providers.

4.5.4 Cluster 4: “delighted loyal”. This group represents the 24.15% of the total sample ($n = 138$), including mostly users with a totally subsidized mobile handset (53.5%). This segment shows the highest mean scores for value for money, and interestingly, they achieve the highest value for “my company is cheap/affordable,” showing that these customers seek for affordable prices and cheap subscription tariffs. So, these users could be considered as being price-sensitive and customers who evaluate the costs of mobile services and who try to maximize the value for money for the mobile services they contract.

Similarly, this segment exhibits the highest levels of involvement, satisfaction and loyalty toward mobile services, and as a consequence, they are labeled as “delighted loyal.” Further, this user group exhibits the highest mean values for company corporate image, suggesting that a favorable corporate image is related to an adequate service quality. Maybe one explanation is that these users dedicate time and effort to find an affordable mobile service that offers benefits and a good value for money relationship. In addition, these users report the highest mean scores for service involvement, meaning that they are strongly involved with their mobile services.

5. Discussion

5.1 Theoretical implications

The present research entails some theoretical implications that extend the previous literature on mobile service customers’ segmentation. In the first place, the cluster named as “service connoisseurs” has been first described in the present research, and one potential reason is that this group of customers only exists in mature markets in developed countries. However, this cluster presents some similarities with the “new life harmony users” (Antonie, 2003), in that they have great knowledge about mobile services and mobile devices. Similarly, this segment is somehow related to the “pragmatics” described by Bjorksten *et al.* (2007) and to the “conservative users” proposed by Sell *et al.* (2014) because of their pragmatism when communication services.

Secondly, the customer segment of “uninvolved pragmatics” is somehow similar both to the “value-driven segment” and the “basic users segment” described by Mazzoni *et al.* (2007) because they seek to maximize their value for money while developing an elementary and essential use of the mobile services. Similarly, this customer group presents some resemblance with the “uninvolved users” proposed by Antonie (2003), given that both clusters show a limited use of mobile services for the most elementary functions.

Further, the “delighted loyal” customer segment could be considered as unique and has not been described in the marketing research on mobile services. The cluster described her is somehow related with the “intense users” described by Antonie (2003), as these two clusters show high involvement with mobile services. Further, this cluster is somehow comparable to the “innovative users” (Sell *et al.*, 2014), regarding their strong use and familiarity with

communication services. Finally, the users labeled as “potential switchers” have not been described in previous studies, and one potential explanation is that to the authors’ knowledge switching intention has not been considered for customers’ segmentation in this sector.

5.2 Managerial implications

The obtained findings provide mobile service managers with useful insights about consumers’ needs and preferences, to offer better tailored and adapted services to each one of the customer segments identified. For example, regarding cluster 1 “service connoisseurs” and considering that this is the largest customer segment, mobile service managers should pay great attention to them, as this segment is a lucrative segment simply because of its large size. Thus, mobile service managers could focus their marketing and communication efforts to improve the relationships with this appealing customer segment, through the provision of detailed and updated technical information.

Mobile service companies targeting the “uninvolved pragmatics” should place great emphasis to the fundamental functions that users traditionally expect from mobile services, such as voice communication, instant messaging and media applications, rather than to the cost, subscription tariffs or other benefits offered to customers. Similarly, an efficient, immediate service could be provided to attract and retain them through the use of functional and practical cues in marketing communication, as this group is receptive to functional information.

In the third place, mobile service companies targeting the “potential switchers” should bear in mind the need to increase customer retention and focus on subscription duration, as one of the main characteristics of this group is their high proportion of free contracts with their mobile service providers, as well as the greatest proportion of not subsidized mobile devices. Therefore, mobile service companies targeting this segment need to understand their evaluation of the services provided to offer a differentiated offering and to enhance service customization to achieve higher levels of customer loyalty and to reduce customer switching intention. Accordingly, mobile service companies may design customized mobile service packages and service plans based on the *potential switchers’* preferences and needs.

Finally, mobile companies targeting the “delighted loyal” need to increase and maintain users’ satisfaction, that for these customers is closely related with a good value for money. Consequently, mobile service companies should provide services with a good cost–benefit relationship, offering low subscription tariffs. In addition and considering that these users are the most loyal, managers should create and develop loyalty programs to reward them with some benefits for their long-term relationship with their companies. For example, mobile service companies could offer them tariff plans whereby users receive bonuses for the calls they make or receive; free airtime, discounts or redeemable points.

Finally, it should be remarked that mobile service companies could increase their competitiveness if they were able to tailor and adapt their services in meeting each customer segment specific needs and demand.

6. Conclusions

In the present research, mobile service users are segmented based on behavioral variables, thus focusing on their actual usage behavior in a mature market; subsequently, the user segments are characterized and profiled in terms of socioeconomic and demographic features, as well as service subscription duration and type.

The major conclusion derived from our findings is that mobile service users cannot be perceived as a homogenous group, as four different groups emerge from our analysis. Therefore, we can state that the “average” mobile service user does not exist, and consequently,

in the mobile service sector, there is room enough for at least four differentiated services targeting these different customer segments.

More precisely, the behavioral-based cluster analysis revealed four distinct clusters that are labeled as “service connoisseurs”, “uninvolved pragmatics”, “potential switchers” and “delighted loyal”. In general terms, the “service connoisseurs” is the most attractive segment for mobile service companies because this is the largest segment, and they do not seek for affordable mobile tariffs; while the “potential switchers” represents the most challenging segment for these companies, due to their low loyalty and high switching proneness. So, one major finding of the present research is the empirical analysis of the existence of diverse customer groups in mobile services, focusing on a mature market.

This study presents some limitations. In the first place, the identified user segments are unlikely to remain stable over a long period of time, as the more specific the segmentation variables used, the less stable the customer segments will be. Future research on the topic could consider other variables not included in this study and more related to the specific use of mobile services. The second research limitation is that it was conducted in one single market – the Spanish market – and therefore, further research may replicate the study across other markets and countries to enable research generalizations. The third research limitation that should be mentioned is the lack of representativeness of all the Spanish regions. Finally, future studies could repeat mobile service users’ segmentation over time, as mobile services and information and communication technologies are continuously evolving, and this may alter the profile of the identified segments.

References

- Al-Debei, M.M. and Al-Lozi, E. (2014), “Explaining and predicting the adoption intention of mobile data services: a value-based approach”, *Computers in Human Behavior*, Vol. 35, pp. 325-338.
- Ali, R., Lynch, R., Melewar, T.C. and Jin, Z. (2015), “The moderating influences on the relationship of corporate reputation with its antecedents and consequences: a meta-analytic review”, *Journal of Business Research*, Vol. 68 No. 5, pp. 1105-1117.
- Andreassen, T.W. (2001), “From disgust to delight: do customers hold a grudge?”, *Journal of Service Research*, Vol. 4 No. 1, pp. 39-49.
- Antonie, P. (2003), “Understanding the mobile phone market drivers”, *Alcatel Telecommunications Review*, Vol. 4, pp. 2-5.
- Aydin, S. and Özer, G. (2005), “The analysis of antecedents of customer loyalty in the Turkish mobile telecommunication market”, *European Journal of Marketing*, Vol. 39 Nos 7/8, pp. 910-925.
- Baker, W.E., Sciglimpaglia, D. and Saghafi, M. (2010), “Branding of post-purchase ancillary products and services: an application in the mobile communications industry”, *European Journal of Marketing*, Vol. 44 No. 5, pp. 547-566.
- Bansal, H., Taylor, S. and James, Y. (2005), “Migrating to new service providers: toward a unifying framework of consumers’ switching behaviours”, *Journal of the Academy of Marketing Science*, Vol. 33 No. 1, pp. 96-115.
- Baumann, C., Elliott, G. and Burton, S. (2012), “Modeling customer satisfaction and loyalty: survey data versus data mining”, *Journal of Services Marketing*, Vol. 26 No. 3, pp. 148-157.
- Bigné, E., Sanchez-García, I. and Currás-Perez, R. (2011), “Antecedentes y consecuencias del arrepentimiento postcompra: Una aplicación a servicios de telefonía móvil”, *Revista Española de Investigación de Marketing – Esic*, Vol. 15 No. 1, pp. 7-34.
- Bjorksten, M., Pohjola, O.P. and Kilkki, K. (2007), “Applying user segmentation and estimating user value in techno-economic modeling”, *6th Conference on Telecommunication Techno-Economics*, CTTE, Helsinki.

- Burnham, T.A., Frels, J.K. and Mahajan, V. (2003), "Consumer switching costs: a typology, antecedents, and consequences", *Journal of the Academy of Marketing Science*, Vol. 31 No. 2, pp. 109-126.
- Calvo-Porrá, C. and Nieto-Mengotti, M. (2019), "The moderating influence of involvement with ICT in mobile services", *Spanish Journal of Marketing – ESIC*, Vol. 23 No. 1, pp. 25-43.
- Campbell, S.W. (2007), "Perceptions of mobile phone use in public settings: across-cultural comparison", *International Journal of Communication*, Vol. 1 No. 1, pp. 738-757.
- Celsi, R.L. and Olson, J.C. (1988), "The role of involvement in attention and comprehension processes", *Journal of Consumer Research*, Vol. 15 No. 2, pp. 210-224.
- Chawla, D. and Joshi, H. (2017), "Consumer perspectives about mobile banking adoption in India: a cluster analysis", *International Journal of Bank Marketing*, Vol. 35 No. 4, pp. 616-636.
- Chih, W.H., Wang, K.Y., Hsu, L.C. and Cheng, I.S. (2012), "From disconfirmation to switching: an empirical investigation of switching intentions after service failure and recovery", *The Service Industries Journal*, Vol. 32 No. 8, pp. 1305-1321.
- Chung, B.D., Park, J.H., Koh, Y.J. and Lee, S. (2016), "User satisfaction and retention of mobile telecommunications services in Korea", *International Journal of Human-Computer Interaction*, Vol. 32 No. 7, pp. 532-543.
- Corrocher, N. and Zirulia, L. (2010), "Demand and innovation in services: the case of mobile communications", *Research Policy*, Vol. 39 No. 7, pp. 945-955.
- Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management Science*, Vol. 35 No. 8, pp. 982-1003.
- Deng, Z., Lu, Y., Wei, K.K. and Zhang, J. (2010), "Understanding customer satisfaction and loyalty: an empirical study of mobile instant messages in China", *International Journal of Information Management*, Vol. 30 No. 4, pp. 289-300.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J. and Bryant, B.E. (1996), "The American customer satisfaction index: nature, purpose, and findings", *Journal of Marketing*, Vol. 60 No. 4, pp. 7-18.
- Gerpott, T., Rams, W. and Schindler, A. (2001), "Customer retention, loyalty and satisfaction in the German mobile cellular telecommunications market", *Telecommunications Policy*, Vol. 25 No. 4, pp. 249-269.
- Gray, D.M., D'Alessandro, S., Johnson, L.W. and Carter, L. (2017), "Inertia in services: causes and consequences for switching", *Journal of Services Marketing*, Vol. 31 No. 6, pp. 485-498.
- Grönross, C. (1988), "Service quality: the six criteria of good perceived service quality", *Review of Business*, Vol. 9 No. 3, pp. 10-13.
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate Data Analysis*, 7th ed., Prentice-Hall, Upper Saddle River NJ.
- Hamka, F., Bouwman, H., de Reuver, M. and Kroesen, M. (2014), "Mobile customer segmentation based on smartphone measurement", *Telematics and Informatics*, Vol. 31 No. 2, pp. 220-227.
- Haque, A., Khatibi, A., Raquib, A. and Al Mahmud, S. (2007), "Consumer perception and its choice mobile telecom service provider in Malaysia", *Journal of International Business and Economics*, Vol. 7 No. 2, pp. 84-97.
- Hernandez-Ortega, B., Aldas-Manzano, J., Ruiz-Mafe, C. and Sanz-Blas, S. (2017), "Perceived value of advanced mobile messaging services: a cross-cultural comparison of Greek and Spanish users", *Information Technology and People*, Vol. 30 No. 2, pp. 324-355.
- Hsieh, J.K., Hsieh, Y.C., Chiu, H.C. and Feng, Y.C. (2012), "Post-adoption switching behavior for online service substitutes: a perspective of the push-pull-mooring framework", *Computers in Human Behavior*, Vol. 28 No. 5, pp. 1912-1920.

- Hu, H.H., Kandampully, J. and Juwaheer, T.D. (2011), "Relationships and impacts of service quality, perceived value, customer satisfaction and image: an empirical study", *The Service Industries Journal*, Vol. 29 No. 2, pp. 111-125.
- Kasper, H., Bloemer, J. and Driessen, P.H. (2010), "Coping with confusion: the case of the Dutch mobile phone market", *Managing Service Quality: An International Journal*, Vol. 20 No. 2, pp. 140-160.
- Katz, E., Gurevitch, M. and Haas, H. (1973), "On the use of the mass media for important things", *American Sociological Review*, Vol. 38 No. 2, pp. 164-181.
- Kim, H.S. and Yoon, C.H. (2004), "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market", *Telecommunications Policy*, Vol. 28 No. 9-10, pp. 751-765.
- Kim, M., Park, M. and Jeong, D. (2004), "The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services", *Telecommunications Policy*, Vol. 28 No. 2, pp. 145-159.
- Kim, B. (2012), "The diffusion of mobile data services and applications: Exploring the role of habit and its antecedents", *Telecommunications Policy*, Vol. 36 No. 1, pp. 69-81.
- Klaus, P. and Zaichkowsky, J. (2019), "AI voice bots: a services marketing research agenda", *Journal of Services Marketing*.
- Ko, E., Kim, E.Y. and Lee, E.K. (2009), "Modeling consumer adoption of mobile shopping for fashion products in Korea", *Psychology and Marketing*, Vol. 26 No. 7, pp. 669-687.
- Kuo, Y.F. and Yen, S.N. (2009), "Towards an understanding of the behavioral intention to use 3G mobile value-added services", *Computers in Human Behavior*, Vol. 25 No. 1, pp. 103-110.
- Kuo, Y.F., Wu, C.M. and Deng, W.J. (2009), "The relationships among service quality, perceived value, customer satisfaction and post-purchase intention in mobile value-added services", *Computers in Human Behavior*, Vol. 25 No. 4, pp. 887-896.
- Lee, Y.C. (2011), "Competitive relationships between traditional and contemporary telecommunication services in Taiwan", *Telecommunications Policy*, Vol. 35 No. 6, pp. 543-554.
- Lee, J., Lee, J. and Freick, L. (2001), "The impact of switching costs on the customer satisfaction-loyalty link: mobile phone service in France", *Journal of Services Marketing*, Vol. 15 No. 1, pp. 35-48.
- Leung, L. and Wei, R. (2000), "More than just talk on the move: uses and gratifications of cellular phone", *Journalism and Mass Communication Quarterly*, Vol. 77 No. 2, pp. 308-320.
- Liao, C., Lin, H.N., Luo, M.M. and Chea, S. (2017), "Factors influencing online shoppers' repurchase intentions: the roles of satisfaction and regret", *Information and Management*, Vol. 54 No. 5, pp. 651-668.
- Lin, K.Y. and Lu, H.P. (2015), "Predicting mobile social network acceptance based on mobile value and social influence", *Internet Research*, Vol. 25 No. 1, pp. 107-130.
- Lu, T., Tu, R. and Jen, W. (2011), "The role of service value and switching barriers in an integrated model of behavioural intentions", *Total Quality Management and Business Excellence*, Vol. 22 No. 10, pp. 1071-1089.
- Lundkvist, A. and Yakhlef, A. (2014), "Customer involvement in new service development: a conversational approach", *Managing Service Quality: An International Journal*, Vol. 14 Nos 2/3, pp. 249-257.
- MacInnis, D.J. and Price, L.L. (1987), "The role of imagery in information processing: review and extensions", *Journal of Consumer Research*, Vol. 13 No. 4, pp. 473-491.
- Marino, V. and Lo Presti, L. (2019), "Stay in touch! New insights into end-user attitudes towards engagement platforms", *Journal of Consumer Marketing*, Vol. 36 No. 6, pp. 772-783.
- Martínez-García de Leaniz, P., Herrero-Crespo, A. and Gómez-López, R. (2019), "The role of environmental CSR practices on the formation of behavioral intentions in a certified hotel context: exploring the moderating effect of customer involvement in the buying process", *Spanish Journal of Marketing-Esic*, Vol. 23 No. 2, pp. 205-235.

- Mazzoni, C., Castaldi, L. and Addeo, F. (2007), "Consumer behavior in the Italian mobile telecommunication market", *Telecommunications Policy*, Vol. 31 Nos 10/11, pp. 632-647.
- Methlie, L. and Nysveen, H. (1999), "Loyalty to on-line bank customers", *Journal of Information Technology*, Vol. 14 No. 4, pp. 375-386.
- Oliver, R.L. (1980), "A cognitive model of the antecedents and consequences of satisfaction decisions", *Journal of Marketing Research*, Vol. 17 No. 4, pp. 460-469.
- Oliver, R.L. (1997), *Satisfaction: A Behavioural Perspective on the Consumer*, McGraw-Hill, New York, NY.
- Oliver, R.L. (1999), "Whence consumer loyalty?", *Journal of Marketing*, Vol. 63 No. 4_suppl1, pp. 33-44.
- ONTSI (2018), "National observatory for telecommunications and the information society".
- Richins, M.L. and Bloch, P.H. (1986), "After the new wears off: the temporal context of product involvement", *Journal of Consumer Research*, Vol. 13 No. 2, pp. 280-285.
- Roy, S.K., Balaji, M.S., Soutar, G., Lassar, W.M. and Roy, R. (2018), "Customer engagement behavior in individualistic and collectivistic markets", *Journal of Business Research*, Vol. 86, pp. 281-290.
- Sell, A., Mezei, J. and Walden, P. (2014), "An attitude-based latent class segmentation analysis of mobile phone users", *Telematics and Informatics*, Vol. 31 No. 2, pp. 209-219.
- Sell, A., Walden, P. and Carlsson, C. (2011), "Segmentation matters: an exploratory study of mobile service users", *International Journal of Systems and Service-Oriented Engineering*, Vol. 2 No. 3, pp. 1-17.
- Sheth, J.N., Newman, B.I. and Gross, B.L. (1991), "Why we buy what we buy: a theory of consumption values", *Journal of Business Research*, Vol. 22 No. 2, pp. 159-170.
- Slater, S.F. and Narver, J.C. (2000), "Intelligence generation and superior customer value", *Journal of the Academy of Marketing Science*, Vol. 28 No. 1, pp. 120-127.
- Smith, W. (1956), "Product differentiation and market segmentation as alternative marketing strategies", *Journal of Marketing*, Vol. 21 No. 1, pp. 3-8.
- Stewart, K. (1998), "An exploration of customer exit in retail banking", *International Journal of Bank Marketing*, Vol. 16 No. 1, pp. 6-14.
- Swiley, E. and Golsmith, R.E. (2007), "The role of involvement and experience with electronic commerce in shaping attitudes and intentions toward mobile commerce", *International Journal of Electronic Marketing and Retailing*, Vol. 1 No. 4, pp. 370-384.
- Tseng, F.M. and Lo, H.Y. (2011), "Antecedents of consumers' intentions to upgrade their mobile phones", *Telecommunications Policy*, Vol. 35 No. 1, pp. 74-86.
- Turel, O. and Serenko, A. (2006), "Satisfaction with mobile services in Canada: an empirical investigation", *Telecommunications Policy*, Vol. 30 Nos 5/6, pp. 314-331.
- Venkatesh, V., Ramesh, V. and Massey, A.P. (2003), "Understanding usability: in mobile commerce", *Communications of the Acm*, Vol. 46 No. 12, pp. 53-56.
- Walsh, G., Mitchell, V.W., Jackson, P.R. and Beatty, S.E. (2009), "Examining the antecedents and consequences of corporate reputation: a customer perspective", *British Journal of Management*, Vol. 20 No. 2, pp. 187-203.
- Wang, W.T. and Li, H.M. (2012), "Factors influencing mobile services adoption: a brand-equity perspective", *Internet Research*, Vol. 22 No. 2, pp. 142-179.
- Wang, K. and Lin, C.L. (2012), "The adoption of mobile value-added services: investigating the influence of is quality and perceived playfulness", *Managing Service Quality: An International Journal*, Vol. 22 No. 2, pp. 184-208.
- Wang, W.T., Ou, W.M. and Chen, W.Y. (2019), "The impact of inertia and user satisfaction on the continuance intentions to use mobile communication applications: a mobile service

-
- quality perspective”, *International Journal of Information Management*, Vol. 44, pp. 178-193.
- Wirtz, J., Xiao, P., Chiang, J. and Malhotra, N. (2014), “Contrasting the drivers of switching intent and switching behavior in contractual service settings”, *Journal of Retailing*, Vol. 90 No. 4, pp. 463-480.
- Wu, D., Ray, G., Geng, X. and Whinston, A. (2004), “Implications of reduced search cost and free riding in ecommerce”, *Marketing Science*, Vol. 23 No. 2, pp. 255-262.
- Zaichkowsky, J. (1984), *Conceptualizing and Measuring the Involvement Construct in Marketing*, University of CA, CA.
- Zaichkowsky, J.L. (1985), “Measuring the involvement construct”, *Journal of Consumer Research*, Vol. 12 No. 3, pp. 341-352.
- Zeithaml, V.A. (1988), “Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence”, *Journal of Marketing*, Vol. 52 No. 3, pp. 2-22.
- Zhou, T. (2012), “Examining continuance usage of mobile internet services from the perspective of resistance to change”, *Information Development*, Vol. 30 No. 1, p. 10.
- Zhou, J., Zhai, L. and Pantelous, A.A. (2020), “Market segmentation using high-dimensional sparse consumers data”, *Expert Systems with Applications*, Vol. 145, p. 113136.

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