

RESEARCH ARTICLE

What drives subscribing to premium in freemium services? A consumer value-based view of differences between upgrading to and staying with premium

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Abstract

Fostering the conversion of free users to premium subscribers and retaining those premium users are critical objectives for freemium service providers. Building on consumer value theory, we empirically examine the differences between basic and premium users in terms of the emotional, functional, social, epistemic, and economic values driving basic users' decisions to upgrade to premium subscriptions and premium users' decisions to retain their paid subscriptions. We employ enjoyment, intrusiveness of advertising in the free subscription, ubiquity, social connectivity, the discovery of new content, and the price value of the premium subscription as drivers of intentions and test our model using data from a leading digital content service that employs the freemium model. Our results show that enjoyment and price value of the premium subscription predict the intention to upgrade to premium, whereas the intention to retain the premium subscription is driven by ubiquity and the discovery of new content. Interestingly, social connectivity has no effect on the intention to upgrade but does have a small negative effect on the intention to retain the premium subscription. Contrary to our expectations, intrusiveness of advertising in the free subscription had a negative effect on the price value of the

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premium subscription. Collectively, our results imply that the intention to retain the premium subscription is influenced by attribute-level value perceptions such as ubiquity, the discovery of new content, and social connectivity whereas the intention to upgrade is driven by benefits, ie, enjoyment and price value of the premium subscription.

KEYWORDS

consumer value, freemium, service, digital content, digital services, customer retention

1 | INTRODUCTION

The freemium business model has become ubiquitous in a wide range of online businesses, including digital content services such as music, video, and newspapers, as well as cloud-based storage services, social networking, and games. In freemium models, a basic or downgraded version of the service is offered free of charge; however, users who wish to access more features can purchase a premium version (Anderson, 2009; Liu, Au, & Choi, 2014). From the freemium service operator's vantage point, premium subscriptions are a primary source of revenue. As a result, the purpose of offering the free version is to attract a large base of users and convert as many as possible into premium subscribers. Consequently, two groups with different user experience standards exist: those who use the free subscription (ie, basic users) and those who use the premium subscription (ie, premium users).

This study focuses on the two most revenue-critical, post-adoption user behaviors for freemium service operators: basic users' upgrading to the premium subscription and premium users' retention of their paid subscriptions. Though both are highly important to the generation of revenue, these two behaviors are quite different. Compared with the decision to retain a premium subscription, the decision to upgrade represents a departure from the users' status quo (Kim & Kankanhalli, 2009; Polites & Karahanna, 2012). This calls for a differentiated analysis of the factors affecting the intention to upgrade and the intention to retain a premium subscription.

Despite the widespread and constantly increasing adoption of the freemium model as well as the emerging research on consumer behavior in the freemium context (Hamari, Hanner, & Koivisto, 2017; Koch & Benlian, 2017; Mäntymäki & Salo, 2015; Nan, Wu, Li, & Tan, 2018; Vock, van Dolen, & de Ruyter, 2013; Wagner, Benlian, & Hess, 2014), the differences between the factors driving basic users to upgrade from free to premium subscriptions and those that drive premium users to retain their paid subscriptions are not well understood. Indeed, prior freemium research suggests that there is no correlation between the attitudes toward the free and premium versions (Wagner et al., 2014); service quality perceptions explain the intention to play freemium games but not the intention to spend money in them (Hamari et al., 2017); and that premium users experience higher levels of gratifications such as enjoyment than basic ones (Mäntymäki & Islam, 2015). Despite these important, yet scattered, empirical observations, the literature on freemium consumer behavior lacks systematic efforts toward context-specific theorizing and cumulative empirical evidence on key user behaviors and the differences between basic and premium users.

Prior IS literature, in turn, has investigated a wide range of post-adoption behaviors in the context of online services such as continued use (Kim & Malhotra, 2005), positive word of mouth (Li, Hongxiu & Liu et al., 2014), and willingness to pay (Kim & Son, 2009), among others. However, considering the managerial relevance of the freemium model, post-adoption behaviors pertinent to the freemium model—such as basic users' intention to upgrade to premium and premium users' intention to retain their premium subscriptions—have thus far received limited attention in the IS literature. Indeed, prior IS literature provides a number of theoretical mechanisms to explain different

post-adoption user behaviors (Kim & Son, 2009; Premkumar & Bhattacharjee, 2008; Venkatesh, Thong, & Xu, 2012) as well as differences between pre-adoption and post-adoption behaviors such as adoption and continued use (Karahanna, Straub, & Chervany, 1999). However, these theoretical mechanisms do not exhaustively incorporate the key characteristics of the freemium model, particularly the fact that the service differentiates between the free and paid versions, and consequently the existence of two (or more) groups of users with different standards of user experience.

To fill the aforementioned gap in the IS literature, we build on consumer value theory (Day, 1990; Gutman, 1982; Sheth, Newman, & Gross, 1991; Woodruff & Gardial, 1996; Zeithaml, 1988), particularly the theory of consumption values (TCV) (Sheth et al., 1991) and the means-end chain (MEC) (Gutman, 1982) to theorize on the differences between basic and premium users in terms of the effects of the consumption values on basic users' intention to upgrade to premium subscription and premium users' intention to retain their premium subscriptions. TCV provides a well-established categorization of consumption values that contribute to consumers' decision making and enable context-specific theorizing. In turn, MEC provides tools to study the interrelationships among the consumption values.

Building on these theoretical premises, we examine the differential effects between basic users and premium users in terms of the hedonic, functional, social, epistemic, and monetary dimensions of value in predicting basic users' intentions to upgrade to the premium subscription and premium users' intentions to retain their paid subscriptions. To this end, we identify five dimensions of consumer value that are pertinent to digital content services that employ the freemium model: enjoyment, intrusiveness of advertising in the free subscription, ubiquity, social connectivity, discovery of new content, and price value of the premium subscription. We test our research model using longitudinal data collected from 436 users of a leading online music service that employs the freemium model, and we analyze the data using structural equation modeling (SEM).

The results show that the consumer values driving the intention to upgrade are completely different from those driving the intention to retain a premium subscription. From the set of value dimensions employed in this study, enjoyment and price value were found to be the only determinants of the intention to upgrade. Interestingly, however, ubiquity and the discovery of new content drove the intention to retain premium subscriptions, while neither enjoyment nor price value had any effect. Finally, contrary to our expectations, social connectivity had a negative effect on the intention to retain the premium subscription. By theorizing and empirically validating a consumer value-based perspective to the differences between upgrading and staying with premium, our study contributes to the literature on consumer decision making in the freemium context (Bapna & Umyarov, 2015; Hamari et al., 2017; Koch & Benlian, 2017; Nan et al., 2018; Oestreicher-Singer & Zalmanson, 2013; Vock et al., 2013; Wagner et al., 2014) and post-adoption user behavior in online services (eg Kim & Son, 2009, Li & Liu, 2014, Ma, Khansa, & Kim, 2018). The research findings are beneficial for freemium service providers and enable them to effectively encourage basic users to upgrade to premium subscriptions and premium users to retain their paid subscriptions with customized intervention plans for both groups of users.

The remainder of this paper proceeds as follows. After the introduction, we review prior research on consumer behavior in the freemium context and present the theoretical underpinnings of our study. The hypotheses are presented in the third section, and the fourth section covers the empirical research and the results. In the fifth section, we discuss the main study findings, summarize the theoretical and practical contributions, highlight the study's limitations, and suggest areas for future research. Finally, the sixth section concludes the paper.

2 | BACKGROUND

2.1 | User behavior in freemium services

The term "freemium," which is a combination of the words "free" and "premium," describes a business model in which a basic product or service is made available for free, while users who wish to receive additional features

and/or an enhanced experience can purchase a premium subscription or make purchases within the service (Anderson, 2009; Anderson, 2013; Liu et al., 2014; Teece, 2010). When employing the freemium model, the service provider's ability to retain paying users and convert nonpaying users into paying ones is a critical success factor (Kumar, 2014). As a result, there are two post-adoption behaviors particularly salient for freemium services: upgrading and retaining the premium subscribers. Thus, from a practical perspective, employing the freemium model requires constant user experience optimization to maintain the delicate balance between the content of free and premium versions. The free version should deliver sufficient value to attract new users and retain current ones without cannibalizing the sales of the premium version (Liu et al., 2014). The premium version should offer sufficient value-added above the basic version to justify the monetary cost. Hence, the employment of the freemium model leads paying and nonpaying users to have different standards of user experience (Shi, Xia, & Huang, 2015). From the vantage point of the service provider, a specific challenge of the freemium model relates to the so-called zero price effect (ZPE) (Shampanier, Mazar, & Ariely, 2007). Research on the ZPE has found that a zero price not only reduces perceived sacrifice but also increases perceived quality (Palmeira & Srivastava, 2013; Shampanier et al., 2007). In the freemium context, the ZPE can be theoretically explained by the concept of mental accounting (Thaler, 1985). According to Thaler (1985), consumers form a reference price for a product beforehand and evaluate this product more favorably if its price is below the reference price. In the freemium context, the price of the free version is zero; therefore, it is always equal to or less than the price that the customer is willing to pay. Hence, from a theoretical perspective, the ZPE should boost the user experience of the free version and dilute the value-added of the premium version (Niemand, Tischer, Fritzsche, & Kraus, 2015). This, in turn, may reinforce the users' tendency to use free subscriptions (Niemand et al., 2015).

As the purpose of the study is to examine how decision making differs between upgrading from the free to the premium subscription and retaining the premium subscription, we conducted a systematic literature review of studies focusing on user behavior in freemium services in keeping with the guidelines set out by Schryen (2015). Table 1 summarizes the findings from the literature review.

With respect to upgrading, the prior literature has found that peer influence (Bapna & Umyarov, 2015) and users' activity in the user community (Oestreicher-Singer & Zalmanson, 2013) increase users' likelihood to upgrade from the free to the premium subscription. Furthermore, results from research on the effect of different free sampling strategies on freemium conversion rates suggest that providing a trial period with the premium version increases the conversion propensity compared with a strategy in which consumers start in the free model and then opt into a trial of the premium version (Koch & Benlian, 2017). Interestingly, only a few prior studies have examined sustained user engagement in the freemium context (Hamari et al., 2017; Mäntymäki & Islam, 2015; Mäntymäki & Salo, 2011), and even fewer discussed the differences between basic and premium users in terms of gratification level obtained from using a freemium service (Mäntymäki & Islam, 2015). In particular, to the best of our knowledge, research examining the differences between basic users' upgrading from free to premium and premium users' retention of their premium subscriptions is absent from the literature. Considering the managerial relevance of these two post-adoption user behaviors in freemium services, this is a notable omission.

In IS literature, the most widely examined post-adoption behavior in online services is arguably continued service use, ie, continuance (Islam, Mäntymäki, & Bhattacharjee, 2017). Some studies investigated online service continuance in conjunction with other post-adoption behaviors such as word of mouth (Chea & Luo, 2008; Li, Liu, Xu, Heikkilä, & van der Heijden, 2015) and purchasing of value-added features (Mäntymäki & Salo, 2011). In contrast, some studies solely focused on other post-adoption behaviors. For example, in their study of the dual mechanisms of post-adoption phenomena, Kim and Son (2009) investigated both loyalty-related outcomes such as usage intentions and word of mouth together with switching cost-related outcomes such as willingness to pay and inattentiveness to alternatives. Ma et al. (2018) examined crowdworkers' active participation in their online community along with their turnover intentions. Moreover, Ray, Kim, and Morris (2014) explored online community members' knowledge contributions and positive word of mouth. In sum, freemium users' intentions to subscribe to the premium version of the service represents a largely unexplored, yet practically relevant post-adoption behavior.

TABLE 1 Prior research on the behavior of freemium service users

Objectives	Key Findings	Theoretical/Conceptual Background	Data and Analysis	Reference
To study how different peer group sources influence the purchase of premium subscriptions	Peer influence produces more than 60% increase in the likelihood of buying the service because of the influence of a friend who has purchased the service. Users with a smaller number of friends experience a stronger relative increase in adoption likelihood due to the influence of their peers, compared with users with a larger number of friends.	Peer influence on social networks (Aral & Walker, 2011; Aral & Walker, 2014)	Randomized field experiment with 2000 Last.fm users. Statistical analysis	(Bapna & Umyarov, 2015)
To investigate whether and how social dynamics in combination with the user's past performance drive the propensity to purchase online freemium social games	Both formal social groups and informal social connections formed when playing games influence the propensity to purchase add-ons and subscriptions within social games that employ the flexible freemium model. Informal social connections moderate the effect of the user's past performance on his or her spending.	Social influence (Deutsch & Gerard, 1955)	One-month server log data from 4115 customers of Dragon's Nest (Chinese MMORPG). Econometric model	(Shi et al., 2015)
To investigate the trade-off between the effect of decreasing uncertainty and that of cannibalization. Explore the conditions under which firms should adopt freemium strategies in the presence of piracy	Higher piracy enforcement level may hurt the firm if the consumer perception increment concerning the quality of a premium version is higher than the quality perception increment of the pirated version.	Information goods and piracy	Mathematical model	(Nan et al., 2018)
To examine how climbing the "ladder of participation" on a digital content website influences willingness to pay (WTP)	Users who are more active in the community are more likely to pay for premium services, even after accounting for content consumption, demographics, and social influence. Community activity is more strongly associated with the likelihood of subscription	User participation in and commitment to online communities (Bateman, Gray, & Butler, 2011)	37 480 nonpaying users and 3430 paying subscribers of Last.fm.	(Oestreicher-Singer & Zalmanson, 2013)

(Continues)

TABLE 1 (Continued)

Objectives	Key Findings	Theoretical/Conceptual Background	Data and Analysis	Reference
	<p>than is the music consumption itself, and community leadership is more strongly associated with the likelihood of subscription than is mere community participation.</p> <p>The study examines the effect of two common free trial strategies—Freefirst and Premiumfirst—on consumers' conversion likelihood: In contrast to Freefirst, Premiumfirst significantly increases conversion propensity, and this positive effect is greater when the premium and free versions are similar.</p>	Prospect theory (Kahneman & Tversky, 1979)	Data collected from the website using web crawler. Econometric model	(Koch & Benlian, 2017)
To study the influence of the conversion strategy on the decision to upgrade to premium			Online contest-based experimental design with 225 iCalculator users. Statistical analysis	
To assess the joint impact of two value propositions—social capital and entitlement—on customers' willingness to pay (WTP) for a professional social network site	<p>The effect of the social capital on WTP is stronger among premium than basic users.</p> <p>The effect of economic value on WTP does not differ between the user groups.</p>	Social capital (Nahapiet & Ghoshal, 1998) and entitlement (Lickel et al., 2000)	Survey of 462 professional social network site users. Structural equation modeling	(Vock et al., 2013)
To understand the reasons teens spend money in a social virtual world that employs a hybrid freemium (premium version and microtransaction) model	The benefits of the premium version are a major reason for spending money in a social virtual world that employs a hybrid freemium model.	Theory of consumption values (Sheth et al., 1994)	Survey of 1604 social virtual world users. Qualitative content analysis	(Mäntymäki & Salo, 2015)
To examine the influence of service quality perceptions on the intention to play a freemium game and to spend money in it.	Perceptions of service quality explain the intention to play but not the purchase intention.	SERVQUAL (Parasuraman, Zeithaml, & Berry, 1985)	Survey of 869 freemium (free-to-play) game players. Structural equation modeling	(Hamari et al., 2017)

(Continues)

TABLE 1 (Continued)

Objectives	Key Findings	Theoretical/Conceptual Background	Data and Analysis	Reference
To examine which factors explain the intention to continue using a virtual world and spend money within it	Perceived enjoyment, perceived usefulness, and attitude predict continuance intention; continuance intention predicts purchase intention; perceived network effect predicts purchase intention but not continuance intention.	TRA/TAM (Fishbein & Ajzen, 1975) + network effects (Abrahamson & Rosenkopf, 1993, Valente, 1995)	Survey of 2481 social virtual world users. Structural equation modeling	(Mäntymäki & Salo, 2011)
To examine users' perceptions of the basic and premium versions and the role of these perceptions in predicting their intentions to purchase the premium version	Individuals' attitudes toward the premium version predict their purchase intentions. Individuals' attitudes toward the free version predict their cognition regarding the premium version. The similarity between the basic and premium versions reinforces this relationship.	Dual mediation hypothesis (MacKenzie, Lutz, & Belch, 1986)	Survey of 317 music-as-a-service users. Structural equation modeling	(Wagner et al., 2014)

2.2 | Consumer value theory

We adopted consumer value theory (Mathwick, Malhotra, & Rigdon, 2001; Sheth et al., 1991; Sweeney & Soutar, 2001) as the overarching theoretical foundation of the study. Our conceptualization of consumer value builds on the main strands of the prior literature (Salem Khalifa, 2004) and contains three key elements: First, consumer value is a subjective perception (Zeithaml, 1988); second, consumer value comprises a number of dimensions (Sheth et al., 1991); third, the weights of these different dimensions of value on consumers' decision making are contingent upon the consumers and their context (Sheth et al., 1991; Sweeney & Soutar, 2001). From this conceptual point of departure, we build on two prominent theoretical perspectives of consumer value: the TCV (Sheth et al., 1991) and the MEC (Gutman, 1982; Gutman, 1997) to theorize on the specific constellation of consumer values and their interrelationships in the context of freemium services.

The TCV was developed as a synthesis of the accumulated body of knowledge on consumer psychology to provide a taxonomy of the functional, emotional, social, and epistemic values that drive consumers' purchasing decisions across product and service categories. In brief, the TCV posits that consumer choice is a function of multiple consumption value dimensions and these dimensions make varying contributions in different choice situations (Sheth et al., 1991).

The TCV has been used to explain a wide range of consumption choices, from college courses (Stafford, 1994) to hedonic digital artifacts, such as mobile phone ringtones (Turel, Serenko, & Bontis, 2010), and virtual items (Kim, Gupta, & Koh, 2011a; Mäntymäki & Salo, 2015). Instead of reducing value to a single cost-benefit evaluation (cf. eg. Zeithaml, 1988), TCV-based literature (Mathwick et al., 2001; Sweeney & Soutar, 2001) has articulated the need for a more fine-grained analysis of how consumers value products and services. Hence, the TCV is an appropriate theoretical basis upon which to classify the values that users attribute to freemium digital content services.

Rather than providing a predefined set of factors and constructs, the TCV offers a guiding framework for context-specific theorization (cf. Davison & Martinsons, 2016). Thus, understanding the context of consumption provides the basis for successful employment of the TCV. As a result, we build upon the TCV's classification of consumption values and contextualize the emotional, functional, social, and epistemic values derived from the use of digital content services.

First, the TCV defines emotional value as "the perceived utility acquired from an alternative's capacity to arouse feelings or affective states" (Sheth et al., 1991, p. 161). The freemium business model has been widely adopted among hedonically oriented IT applications, such as games (Hamari et al., 2017), virtual worlds (Mäntymäki & Salo, 2013), and online music (Wagner et al., 2014). The use of hedonic IT can be considered a form of hedonic consumption (cf. Hirschman & Holbrook, 1982; van der Heijden, 2004). By including sensory stimuli, such as sounds, tastes, aromas, tactile impressions, and visual images, hedonic consumption incorporates the fantasy, emotive, and multisensory aspects of the consumption experience (Hirschman & Holbrook, 1982). According to Pucely, Mizerski, and Perrewe (1988, p. 37), these types of experience-oriented products often involve fun, amusement, fantasy, arousal, sensory stimulation, and enjoyment. As a result, we adopt *enjoyment* (Davis, Bagozzi, & Warshaw, 1992) to capture the hedonic value attributed to the use of a hedonic digital content service that employs the freemium model.

One of the key characteristics of the freemium model is the differentiation between free and premium versions (Hamari et al., 2017; Mäntymäki & Islam, 2015; Wagner et al., 2014). Commercials incorporated in the free version are a widely used approach to execute this differentiation and to monetize from the base of basic users (Mäntymäki, Hyrynsalmi, & Koskenvoima, 2019). The commercials frequently interrupt the usage experience and may have a negative effect on basic users' enjoyment. As a result, we examine the *intrusiveness of advertising* (Li, Edwards, & Lee, 2002) in the free subscription as another, freemium-specific aspect of emotional value.

Second, the TCV describes the utilitarian values attributed to consumption based on the concept of functional value—that is, "the perceived utility acquired from an alternative's capacity for functional, utilitarian, or physical performance. An alternative acquires functional value through the possession of salient functional, utilitarian, or physical attributes" (Sheth et al., 1991, p. 160). In addition to the use of commercials, the free and premium versions can be

differentiated in terms of their functional performance. A common approach to executing this differentiation is to restrict nonpaying users' access to the service or its content (cf. Oh, Animesh, & Pinsonneault, 2016).

A particular advantage that is pertinent to digital content services stems from the fact that users do not need to download content to a device but can instead access the content library via the Internet using multiple devices (Morris & Powers, 2015). In fact, prior research on mobile (Kim & Garrison, 2008; Okazaki & Mendez, 2013) and cloud computing services (Arapaci, 2016) has identified ubiquity as a determinant of use decisions. Thus, we adopt the concept of *ubiquity* (Okazaki & Mendez, 2013) from mobile computing to capture the functional value related to the availability and convenience of accessing digital content. A freemium service operator can differentiate the free and premium versions in terms of ubiquity by, for example, providing the option to download content to be used without network connectivity as a premium feature or imposing constraints on the number of devices that nonpaying users can use to access the service.

Third, the TCV further posits that people's consumption choices are driven by social value—that is, “the perceived utility from an alternative's association with one or more specific social groups” (Sheth et al., 1991, p. 161). For freemium services, creating social ties among users is an important component of fostering customer retention. The potential network effect stemming from user-to-user interactions can reinforce the social value of the service and ultimately create a lock-in effect that makes switching to a competing service appear less attractive.

Furthermore, as the consumption of digital content can be both a personal and a communal experience (Jones, 2011), the social dimension of value can manifest itself in various ways—for example, through connecting with others who have similar (or different) content preferences. To this end, digital content services that employ the freemium model have incorporated social features (Hagen & Lüders, 2016) that enable users to share their content with others. In addition, integration with social networking sites is a common approach for incorporating a social element into digital content services (Mäntymäki & Islam, 2015). As a result, we employ the concept of *social connectivity* (cf. Dholakia, Bagozzi, & Pearo, 2004) to capture the social value derived from the use of digital content services.

Fourth, the TCV asserts that epistemic value—that is, “the perceived utility acquired from an alternative's capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge” (Sheth et al., 1991, p. 162)—motivates people's consumption decisions. This type of value is particularly important in the context of experiential consumption (cf. Sheth et al., 1991)—for example, of digital content. Moreover, in regard to the employment of the freemium model, differentiating the free and premium versions in terms of epistemic value is a common approach among digital content services. For example, part of the content can be made available exclusively to premium users.

Digital content services typically feature vast content libraries. To enable users to better utilize these libraries, the services offer search and recommendation features that help users find content to suit their preferences and contexts. In addition, the services can offer curated content based on, for example, content genre as well as users' preferences and location. As a result, we employ the *discovery of new content* concept to investigate the epistemic value derived from obtaining new content that suits users' preferences and contexts.

Fifth, the consumer value theory has been used to extensively investigate the role of costs, such as the monetary price of a product or service, as a factor that shapes consumers' value perceptions (Day, 1990; Huber, Herrmann, & Morgan, 2001; Woodruff & Gardial, 1996; Zeithaml, 1988). For example, Zeithaml (1988, p. 14) suggested that perceived value can be regarded as a “consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given.” Zeithaml (1988) further argued that while some consumers perceive value when the price of the product or service is low, for others, value might represent a balance between quality and price.

As a result, to incorporate the cost dimension into our model, we employ *price value* of the premium subscription to capture the consumer's evaluation of the value for money (Kim, Gupta, & Koh, 2011b; Sweeney & Soutar, 2001) of the premium version. This dimension of value is particularly interesting and relevant in the freemium context. The users of the premium subscription have access to additional features, but they also experience the cost associated with paying a monthly subscription fee. In contrast, when evaluating the price value of the premium subscription,

basic users typically conduct this cost-benefit analysis based on secondary sources of information about the value-added of the premium features.

The MEC, which is our second theoretical perspective related to consumer value, complements the TCV by providing a tool for theorizing about the relationships between different dimensions of value. According to the MEC, consumers purchase and use products and services to obtain desirable outcomes or ends (Chiu, Wang, Fang, & Huang, 2014; Gutman, 1982; Gutman, 1997). The MEC suggests that consumers learn to think about products and services in the light of their attributes and the consequences accruing from their use, ie, benefits. Specifically, the MEC posits that a customer's knowledge about products, stored in long-term memory, gets organized in three inter-linked cognitive categories: attributes, benefits, and terminal values (Gutman, 1982). Attributes represent a means by which consumers obtain the benefits. For example, the features of a hedonic online service can be considered attributes through which the user materializes the benefits such as enjoyment and price value of the premium subscription. Terminal values refer to a consumer's knowledge of his or her desired end states, which transcend specific contexts and situations (cf. Schwartz & Bilsky, 1990). Terminal values, despite being connected to benefits, may not necessarily play an active role in driving every consumption decision (Cohen & Warlop, 2001). In fact, benefits are generally considered more important for customer decision making than attributes and terminal values (eg, Gutman, 1991).

For the present study, a key asset of the MEC is that it provides a foundation for theorizing on the constellation of values driving consumer behavior (Bagozzi & Dholakia, 1999; Paul, Hennig-Thurau, Gremler, Gwinner, & Wiertz, 2009; Woodruff & Gardial, 1996) in the context hedonic digital content services. Because the use of hedonic digital content services falls under the category of hedonic consumption (Babin, Darden, & Griffin, 1994; Hirschman & Holbrook, 1982) and hedonic information systems (van der Heijden, 2004), enjoyment is the key benefit that consumers seek to obtain through their engagement with the services. Compared with attribute-level values such as ubiquity, social connectivity, intrusiveness of advertising, and the discovery of new content, enjoyment is essentially an overall evaluation of the user experience. Hence, building on the MEC, we theorize that the attribute-level dimensions of value (ubiquity, intrusiveness of advertising, social connectivity, and the discovery of new content) are instrumental in achieving enjoyment (cf. Paul et al., 2009). Similarly, the price value of the premium subscription is essentially an outcome of a cost-benefit analysis that comprises the overall value-added in terms of, eg, discovery of new music and ubiquity as well as the costs, such as the monetary costs of premium subscription and the psychological cost related to the intrusiveness of advertising in the basic subscription.

Finally, the dependent variables are the intention to upgrade to the premium subscription (for basic users) and the intention to retain the premium subscription (for premium users). While the intention to retain the premium subscription essentially means continuance of an existing behavior, the intention to upgrade from free to the premium subscription means a departure from the user's status quo (Kim & Kankanhalli, 2009; Polites & Karahanna, 2012). Differentiating the intentions between the users of the free and premium subscriptions allows us to capture two highly important post-adoption behaviors (cf. eg, Kim & Son, 2009, Pan, Lu, Wang, & Chau, 2017, Saeed & Abdinnour, 2013) in the context of freemium online services. Table 2 provides a summary of the constructs and their definitions.

3 | HYPOTHESES

Prior IS studies have highlighted the role of enjoyment in predicting the use of hedonic IS (van der Heijden, 2004), such as online games (Li et al., 2015), social virtual worlds (Mäntymäki & Riemer, 2014; Zhou, Fang, Vogel, Jin, & Zhang, 2012), social networking sites (Cheung, Chiu, & Lee, 2011), and music-listening applications (Krause, North, & Heritage, 2014). Arguably, the additional features of the premium subscription make the overall user experience more enjoyable than the basic version. For example, digital content services that employ the freemium model often use advertising in the free version, whereas premium users are not distracted by the advertising. Commercial breaks

TABLE 2 Research constructs, their definitions, and their respective system features

Construct	Definition	Reference	Examples of System Features and Differentiation Between Free and Premium Subscriptions
Social connectivity	The extent to which using the service helps achieve gains in obtaining information about other people's content preferences; sharing favorite content with others.	(cf. Dholakia et al., 2004)	Sharing content with other users, following other users, integration with social media platforms.
Discovery of new content	The extent to which using the service facilitates the discovery of new content and the broadening of a user's preferences.	(Sheth et al., 1991, Sweeney & Soutar, 2001)	Large content libraries, search features, recommendation agent features, and curated content. Exclusive content available with the premium subscription only.
Ubiquity	The extent to which using the service helps achieve gains in accessing content, irrespective of time and place.	(Okazaki & Mendez, 2013)	Access to content via the Internet; no need to download files. Downloading content for offline use or no upper limit for downloaded content as a premium feature.
Intrusiveness of advertising	The extent to which advertising distracts the user experience in the free subscription.	(Li et al., 2002)	Regular commercial breaks and advertisements in the user interface.
Price value of the premium subscription	The extent to which premium subscription to the service offers good value for money.	(Sweeney & Soutar, 2001)	Additional benefits and features of the premium subscription.
Enjoyment	The extent to which using the service is perceived as enjoyable in its own right.	(Davis et al., 1992)	
Intention to upgrade to the premium subscription/retain the premium subscription	User's subjective probability that a he/she will upgrade to the premium subscription (basic users) /retain his/her premium subscription (premium users).	(Bhattacharjee, 2001b; Fishbein & Ajzen, 1975)	

and advertisements interrupt the user experience and are therefore likely to decrease basic users' enjoyment of the service. Furthermore, the premium version may contain additional features, such as enhanced content quality, and exclusive content.

With regard to the role of enjoyment in driving the intention to upgrade vs intention to retain the premium subscription, we theorize that enjoyment is a key driver of basic users' upgrade decisions but plays a less central role in decisions to retain the premium subscription. This assertion is supported with the notion that prior knowledge and experience generally increase the likelihood of analytical information processing (Bettman, 1979). Because of their prior engagement with the premium features, the premium users are better equipped to develop conceptual structures (Alba & Hutchinson, 1987) such as beliefs and evaluations regarding the contents and value-added of the premium subscription than the basic users who generally need to rely on the information available to them from secondary sources. As a result, because of their first-hand information about the additional features, premium users are likely to emphasize attribute-level factors in their decision making (Sujan, 1985).

In contrast, basic users lack first-hand experience of the additional features of the premium subscription and are thus likely to put increased emphasis on the benefits such as enjoyment (ie, the overall evaluation of the user experience) rather than attribute-level values. In particular, because enjoyment is a focal aspect of the user experience in hedonic information systems (Li et al., 2015; Mäntymäki & Salo, 2011; van der Heijden, 2004), it is arguably one of the most evident benefits that people relate to their hedonic IT use decisions. Based on these considerations, we posit:

H1 *The effect of enjoyment on the intention to upgrade is stronger than on the intention to retain the premium subscription.*

Compared with premium users who can base their evaluation of price value on their first-hand experiences with the additional features of the premium subscription, when evaluating its price value, basic users must rely on other sources of information such as marketing messages about the additional features of the premium subscription. As a result, the decision to upgrade is characterized by a higher level of uncertainty than the decision to retain the existing premium subscription. The presence of uncertainty generally increases consumers' risk aversion (cf. Thaler, 1985) which, in turn, is likely to increase the relative effect of price value in basic users' decisions to upgrade to the premium subscription compared with premium users.

Moreover, prior e-commerce research on the differences between potential and repeat online store customers suggests that price is a key factor among potential customers but considerably less important for repeat customers (Reibstein, 2002). This aligns with the notion that consumers' prior experience with an online vendor makes them less price sensitive in their decision making (Reichheld & Scheffer, 2000). Therefore, price value may have a stronger positive effect on purchase intention among potential than repeat online customers (Kim & Gupta, 2009). This reasoning leads us to posit:

H2 *The effect of price value on the intention to upgrade is stronger than on the intention to retain the premium subscription.*

With respect to functional values, a key advantage of digital content services is that users can access the digital content library via the Internet with different devices and, therefore, do not need to store content in any physical or digital format. Consequently, we state that ubiquitous access to content is a functional value that is salient to digital content services, and in the freemium context, we regard it as a predictor of the intention to upgrade and the intention to retain the premium subscription. This aligns with prior research findings that ubiquity drives the use of mobile computing services (Kim & Garrison, 2008; Okazaki & Mendez, 2013). In addition to predicting the intention to upgrade and the intention to retain the premium subscription, we build on the MEC and theorize that ubiquity

contributes to enjoyment and price value, as ubiquitous access to the service arguably makes the overall user experience more enjoyable as well as increases the perceptions of price value.

As described earlier, providing the option to download content to a device for later use without network connectivity can be a premium feature for differentiating the functional performance between the free and premium versions. The option to download content to a device for later use without network connectivity is a feature that arguably increases the ubiquity of the premium subscription. Thus, premium users are likely to experience higher levels of ubiquity and place more emphasis on ubiquity in their decision making than basic users. Consequently, we posit:

H3a *The effect of ubiquity is stronger on the intention to retain the premium subscription than on the intention to upgrade.*

H3b *The effect of ubiquity on enjoyment is moderated by subscription type, such that the effect will be stronger among premium users.*

H3c *The effect of ubiquity on price value is moderated by subscription type, such that the effect will be stronger among premium users.*

With respect to social connectivity, the implementation of features that enable social interaction between users is a widely adopted strategy to foster user engagement with digital content services (Oestreicher-Singer & Zalmanson, 2013). For example, digital content services offer social features that allow users to share their preferred and/or curated content with other users, follow other users' content, and enable integration with social media platforms, through which they can share their content via automatic updates. Thus, social features enable greater visibility of users' content preferences, thereby helping them to engage with others who have similar tastes and content preferences.

Because premium users pay a monthly fee for their usage, it is plausible to assume that they consider the content of the service to be generally more important than nonpaying basic users. Therefore, they might also place more emphasis on the opportunities to engage in content-related interaction and communicate their content preferences to other users. Consequently, compared with basic users, the premium ones are likely to be more aware of and inclined to use the social features. Based on these considerations, we hypothesize that the role of social connectivity in driving decision making is greater among premium users than among basic users. This reasoning leads us to posit:

H4a *The effect of social connectivity is stronger on the intention to retain the premium subscription than on the intention to upgrade.*

H4b *The effect of social connectivity on enjoyment is moderated by subscription type, such that the effect will be stronger among premium users.*

H4c *The effect of social connectivity on price value is moderated by subscription type, such that the effect will be stronger among premium users.*

Digital content services facilitate the discovery of new content from the large amount of content available for users. To help users better utilize the available content, the services often include search and recommendation

features (cf. Xiao & Benbasat, 2007), which make it easier for them to find content to suit their preferences. These features offer customized recommendations based on the user's activities in the service and demographics. In addition, the services often feature curated content that is based on genre of content, users' geographic location, and numerous other factors (Morris & Powers, 2015).

As premium users may gain exclusive access to new content, their subscriptions enable the discovery of new content to a greater extent than do those of basic users. Consequently, premium users also have more opportunities to use and derive value from the recommendation features. Hence, it is logical to expect the discovery of new content to be a stronger predictor of the intention to retain the premium subscription than the intention to upgrade and that its influence on enjoyment and price value will be greater among premium users than basic ones.

H5a *The effect of the discovery of new content is stronger on the intention to retain the premium subscription than on the intention to upgrade.*

H5b *The effect of the discovery of new content on enjoyment is moderated by subscription type, such that the effect will be stronger among premium users.*

H5c *The effect of the discovery of new content on price value of the premium subscription is moderated by subscription type, such that the effect will be stronger among premium users.*

Commercials interrupting the user experience have a detrimental effect on the overall value of the basic subscription. From a freemium service providers' vantage point, the motivation behind using commercials are two-fold: First, the use of commercials is a mechanism to cover the costs accruing from serving a vast body of nonpaying users. Second, freemium service providers apply so-called strategic inconvenience (Barnett, 2012) to motivate basic users to upgrade and premium users to retain their paid subscriptions. For example, Wagner et al. (2014) point out that freemium services offer trial periods with the premium versions and use advertising to promote the conversion from free to premium service (Koch & Benlian, 2017; Wagner et al., 2014).

As a result, it is plausible to assume that the intrusiveness of advertising in the free subscription has a positive effect on the intention to upgrade, intention to retain the premium subscription, and the price value of the premium subscription. Since only the free subscription features commercials, basic users generally have more recent first-hand experiences from advertising intrusions than premium ones. Hence, it is reasonable to assume that the effect of the intrusiveness of advertising in the free subscription is generally stronger for basic users. Similarly, commercials should have a negative effect on enjoyment among basic users but not among the premium ones.

H6a *The effect of intrusiveness of advertising has a stronger effect on the intention to upgrade than on the intention to retain the premium subscription.*

H6b *The effect of intrusiveness of advertising on enjoyment is moderated by subscription type, such that the effect will be stronger among basic users.*

H6c *The effect of intrusiveness of advertising on the price value of the premium subscription is moderated by subscription type, such that the effect will be stronger among basic users.*

Figure 1 summarizes these hypotheses.

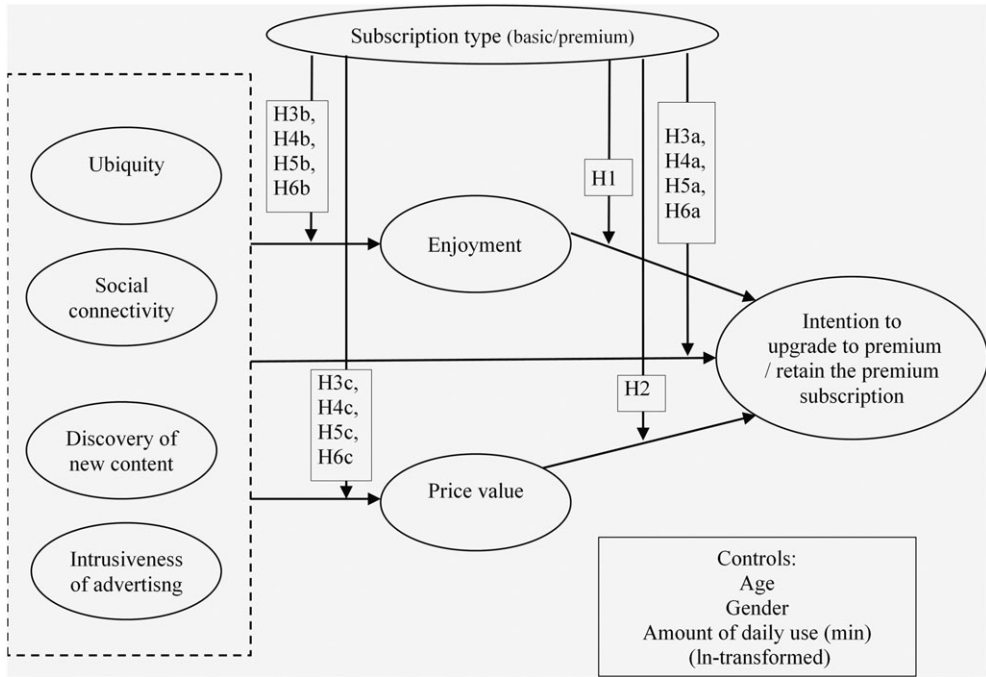


FIGURE 1 The research model

4 | EMPIRICAL RESEARCH

4.1 | Measurement development and data collection

From a contextual standpoint, online music is an area in which the freemium model has been applied extensively. Numerous leading online music-streaming services, such as Spotify, Deezer, and SoundCloud, employ the freemium business model. Spotify, the most popular music-streaming service, has more than 200 million active users globally. Of these users, 87 million pay for the premium service.¹ Because striking a balance between free and paid content represents a key business challenge for a number of digital content services (Oh et al., 2016), findings from the online music-streaming context—in which the freemium model has been successfully employed—should provide useful insights that are relevant to a range of digital content services. Moreover, the freemium models employed by the leading online music services are very similar, as described in Appendix A, which summarizes the added benefits of the Spotify and Deezer premium user subscriptions compared with their free ones. Because Spotify is the leading online music-streaming service that employs the freemium model, we decided to conduct our research among Spotify users.

The measurement items for ubiquity, enjoyment, intrusiveness of advertising, price value, and intention to upgrade as well as intention to retain the premium subscription were adapted from existing scales. The survey instrument used in the measurement is presented in Appendix B. The items for social connectivity and the discovery of new content were developed specifically for this study. To this end, we interviewed 11 active Spotify users, whom we asked to elaborate on their perceptions and experiences regarding Spotify's content curation, recommendations, and social features. The interviewees were all members of a Facebook group who volunteered to be interviewed. Five of the interviewees were female, six were male, and their ages ranged 21 to 47 years. The interviews lasted from 21 to 42 minutes, during which we made notes. We also recorded all the interviews.

¹<https://press.spotify.com/fi/about/>

With respect to the discovery of new content, we identified three key themes from the interviews and labeled them “meeting a user’s music preferences,” “introducing new music,” and “new releases.” Excerpts from the interviews illustrating the above themes are presented in Appendix C.

All the interviewees considered the artist and playlist recommendations, information about new releases, and the playlists created by Spotify to be valuable and believed that they enriched the user experience. The following quotations from the respondents describe their experiences regarding the discovery of new content:

“With Spotify, I can find new music that suits my preferences.”

“I can find new, interesting music that I have not heard before.”

“With TOP lists, I can see what kind of music is popular.”

Interestingly, while the interviewees found it quite easy to articulate various benefits gained from the recommendations and curated content, only four stated that they actively used Spotify’s social features. In addition, the interviewees did not intuitively describe the benefits of the social features to the same degree as they did the recommendation features. With respect to social interaction, some interviewees considered the potential to follow other users and receive information about their music preferences a feature that was unique to Spotify, whereas others were quite skeptical regarding the value-added aspect of the social features. We classified the comments regarding social connectivity into three themes, which we labeled “following other users,” “connecting and community,” and “sharing playlists.” Excerpts from the interviews illustrating these themes are presented in Appendix D, while the quotations below illustrate the interviewees’ descriptions of how Spotify facilitates social interaction, as well as their views of its benefits.

“I can get to know people through knowing about the music they listen to.”

“I can share good songs with my friends.”

Based on the information collected from the interviewees, we established a list of 12 candidate items measuring the values related to the discovery of new content and social connectivity. The candidate items were reviewed by four experienced Spotify users, one Ph.D. student, and two senior academics. Based on the review results, one item was deemed redundant and was, therefore, eliminated.

To ensure the quality of the developed items, a card-sorting exercise was conducted (Moore & Benbasat, 1991). The measurement items were presented to 14 active Spotify users, who were asked to group the items and provide definitions of the groups. All the participants divided the items into two groups, which corresponded to the two new constructs. In total, 82% of the items were sorted correctly. Because two items accounted for most of the incorrect sorting, they were omitted from the measurement.

Finally, six items measuring the discovery of new content and three measuring social connectivity were accepted for use. All the constructs were measured using reflective indicators because of the direction of causality from the constructs to the items (Cenfetelli & Bassellier, 2009). The items were measured on a five-point Likert scale anchored from strongly agree to strongly disagree.

The data were collected using a two-stage online survey, which was filled out by Finnish Spotify users. The survey instrument was translated into Finnish by the first author, who is a native Finnish speaker, and then checked by another native Finnish-speaking scholar. To collect the data, we randomly selected a group of 1500 respondents from the student database of a major Finnish university. The database includes students at bachelor’s, master’s, and PhD level, as well as graduates taking additional courses to complement their degrees. We also published an invitation to participate in the survey on two Facebook groups related to our university. To mitigate the risk of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), we conducted the data collection in two stages, with a 2-week gap between the main survey and the follow-up. The aim of the main survey was to measure the independent variables, while the follow-up survey measured only enjoyment and the intention to upgrade and the intention to retain the premium subscription.

Altogether, the survey was opened 810 times, and 471 respondents completed both the main and follow-up surveys, yielding an overall completion rate of 58.1%. After we cleaned the data from the logically incorrect responses, the final sample comprised 467 responses, of whom 265 were female and 202 male. The age of the respondents

TABLE 3 Demographic profiles of the respondents

Age (y)		<20	20-24	25-29	30-34	35-	Total
Premium	Female	2	73	43	12	6	136
	Male	3	45	55	11	9	123
	Total	5	118	98	23	15	259
Basic	Female	5	72	32	15	5	129
	Male	0	41	22	8	8	79
	Total	5	113	54	23	13	208
All	Female	7	145	75	27	11	265
	Male	3	86	77	19	17	202
	Total	10	231	152	46	28	467

TABLE 4 Amount of time spent on the service by the basic and premium users

Use per day (min)	Basic		Premium	
	n	Percentage	n	Percentage
1-30	118	56.7 %	74	28.6 %
30-60	42	20.2 %	43	16.6 %
60-90	14	6.7 %	36	13.9 %
90-120	13	6.3 %	34	13.1 %
120-150	3	1.4 %	15	5.8 %
150-180	7	3.4 %	21	8.1 %
180+	11	5.3 %	36	13.9 %
Total	208	100 %	259	100 %

varied between 18 and 53 years, with a mean age of 25. Of the total numbers of respondents, 208 (44.5%) had the free basic subscription, and 259 (55.5%) had the premium subscription. The use of online music streaming in Finland is most common in the age cohorts below 40 years, and the proportion of premium users is largest in the age cohorts below 30 years.² Thus, the data meaningfully corresponded to the profiles of Finnish online music-streaming users. Nevertheless, we did not employ random sampling and so do not attempt any statistical generalizations.

We also examined the amount of time spent on the service when using (a) a computer, (b) a mobile phone, and (c) a tablet. The average overall listening time per day was 73 minutes for basic users and 130 minutes for premium users. To test for possible nonresponse bias, we compared the earliest 20% and last 20% of the responses. A t-test detected no statistically significant difference between the demographic profile of the early and late responses. Information on respondents' age, gender, subscription type, and amount of time spent on the service is presented in Tables 3 and 4.

4.2 | Analysis and results

We first examined the factorial validity of the six constructs capturing consumer value using a principal component analysis with a Varimax rotation. Six factors with eigenvalues greater than 1 emerged from the rotated solution,

²Study of digital music consumption: 80% of Nordic consumers use streaming services http://polarisnordic.org/Polaris_Nordic_Digital_Music_Survey_2017_infographs.pdf

representing each research construct and, thus, supporting the factorial validity of the measurement (Straub, Boudreau, & Gefen, 2004). The results of the principal component analysis for the basic and premium user samples are presented in Appendices E and F.

Thereafter, we proceeded to testing the measurement model using AMOS 25 SEM software. To investigate convergent validity, we first examined the factor loadings, composite reliabilities, and average variance extracted (AVE) values for both basic and premium user samples. We deleted four items (UBI4, UBI5, DISCO5, and DISCO6) with loadings less than 0.7 on the respective constructs. The composite reliability values ranged from 0.806 to 0.962 and the AVE values from 0.636 to 0.743. These values clearly exceeded Fornell and Larcker's (1981) cutoff criteria of 0.7 for composite reliability and 0.5 for AVE. One item's (SOC1) loading was 0.693 and, thus, below the 0.7 criteria for the basic user sample. Because the loading was close to the cutoff and the composite reliability and AVE were good, we decided to retain the item in the measurement. The item means, standard deviations, loadings, composite reliabilities, and AVEs are presented in Tables 5 and 6.

To investigate discriminant validity, we compared the correlations between the latent constructs to the square roots of the AVEs. Tables 7 and 8 provide this information. As the tables indicate, the square roots of the AVEs clearly exceed the interconstruct correlations.

After having verified the convergent and discriminant validity, we examined the model fit. Table 9 below shows that the measurement model exhibited a good fit with the whole data set and an acceptable fit with both the basic and premium user subsamples.

TABLE 5 Item means, standard deviations, loadings, composite reliabilities, and AVEs for the basic user sample

Item	MEAN	S.D.	LOADING*	Composite Reliability	AVE
UBI1	3.433	1.222	0.930	0.828	0.650
UBI2	3.813	1.089	0.752		
UBI3	3.630	1.229	0.793		
DISCO1	3.856	1.089	0.848	0.896	0.732
DISCO2	3.726	1.039	0.849		
DISCO3	3.774	1.003	0.800		
DISCO4	3.904	1.036	0.807		
SOC1	3.207	0.993	0.693	0.828	0.650
SOC2	2.466	0.982	0.735		
SOC3	2.889	1.082	0.916		
ENJ1	3.865	0.874	0.778	0.856	0.666
ENJ2	4.053	0.875	0.891		
ENJ3	4.029	0.845	0.773		
PREMIUM1	3.591	1.192	0.968	0.962	0.729
PREMIUM2	3.519	1.239	0.959		
PREMIUM3	3.490	1.243	0.910		
PRICE1	3.212	1.144	0.895	0.912	0.699
PRICE2	3.067	1.119	0.873		
PRICE3	3.019	1.175	0.873		
INTRU1	4.192	0.907	0.908	0.866	0.673
INTRU2	3.519	1.142	0.738		
INTRU3	4.327	0.839	0.828		

*All item loadings significant at the $P < .01$ level.

TABLE 6 Item means, standard deviations, loadings, composite reliabilities, and AVEs for the premium user sample

Item	MEAN	S.D.	LOADING*	Composite Reliability	AVE
UBI1	4.073	1.216	0.942	0.925	0.707
UBI2	4.355	0.959	0.863		
UBI3	4.263	1.227	0.883		
DISCO1	4.162	1.051	0.866	0.913	0.743
DISCO2	4.035	0.966	0.890		
DISCO3	3.954	1.029	0.851		
DISCO4	4.170	0.929	0.786		
SOC1	3.317	1.064	0.701	0.806	0.636
SOC2	2.467	0.997	0.726		
SOC3	2.884	1.090	0.853		
ENJ1	3.857	0.862	0.768	0.806	0.636
ENJ2	4.270	0.652	0.718		
ENJ3	4.112	0.802	0.799		
PREMIUM1	4.382	1.051	0.951	0.962	0.728
PREMIUM2	4.432	0.987	0.963		
PREMIUM3	4.359	1.134	0.921		
PRICE1	3.656	1.119	0.933	0.887	0.685
PRICE2	3.498	1.121	0.863		
PRICE3	2.740	1.151	0.747		
INTRU1	4.336	0.940	0.950	0.898	0.692
INTRU2	3.795	1.046	0.718		
INTRU3	4.378	0.913	0.910		

We also statistically examined the risk of CMB (Podsakoff et al., 2003). First, we employed Harman's single-factor approach with a confirmatory factor analysis using AMOS, as developed by Malhotra, Kim, and Patil (2006). The single-factor model exhibited a very poor fit, indicating that CMB was unlikely to be a major concern. In addition, because the single-factor approach is known to be conservative in regard to detecting CMB, we used the common latent factor approach (Podsakoff et al., 2003) and included a common method factor in the measurement model. All the measurement items clearly loaded higher on their intended constructs than on the common method factor, further suggesting that CMB did not distort the results.

Before testing the structural model, we investigated the differences in the levels of our focal constructs between the basic and premium users by conducting a series of ANCOVAs. In addition to examining the main effect of subscription type, we controlled for the effect of gender, age, and amount of use time. We employed Levene's test to investigate the equality of variances for each construct. Levene's test verified the equality of variances across basic and premium users for price value of the premium subscription, enjoyment, discovery of new content, social connectivity, intrusiveness of advertising in the free subscription, and enjoyment. (Martin & Bridgmon, 2012). The results from ANCOVAs imply statistically significant differences in the levels of ubiquity, price value, and discovery of new content between the basic and premium users. Table 10 summarizes the results from ANCOVAs.

Having verified the reliability and validity of the measurement, we proceeded to test the structural model using AMOS. To account for the potential influence of the respondents' genders, ages, and amount of time used on the service daily, we included these as control variables. We standardized the values for the amount of time using an In-

TABLE 9 Model fit statistic

Fit Index	Basic User Sample	Premium User Sample
χ^2/DF	1.546	1.970
GFI	0.884	0.875
AGFI	0.838	0.826
CFI	0.958	0.949
RMR	0.068	0.059
RMSEA	0.051	0.061

TABLE 10 Results of ANCOVAs

		Basic	Premium	F Statistic	Significance Level
Price value of the premium subscription	Mean	3.099	3.4749	77.473	***
	S.D.	0.447	0.445		
Enjoyment	Mean	3.982	4.081	2.827	n.s.
	S.D.	0.761	0.656		
Ubiquity	Mean	3.625	4.230	37.869	***
	S.D.	1.045	1.056		
Social connectivity	Mean	2.854	2.889	0.085	n.s.
	S.D.	0.867	0.889		
Discovery of new content	Mean	3.815	4.080	8.468	**
	S.D.	0.910	0.885		
Intrusiveness of advertising	Mean	4.022	4.198	3.628	n.s.
	S.D.	0.841	0.851		

Bolded data highlight the differences that are statistically significant.

transformation and used the standardized values to test the structural model. None of the control variables had a significant effect on the intention to upgrade or intention to retain the premium subscription.

To test our hypotheses, we ran the structural model separately for the basic and premium user subsamples. Figures 2 and 3 summarize the results. We employed a series of z-tests to examine the differences in terms of the effects of our focal constructs on enjoyment and the price value of the premium subscription.

Interestingly, enjoyment and price value of the premium subscription were the only statistically significant predictors of the intention to upgrade. In contrast, for premium users, the effects of enjoyment and price value on the intention to retain the premium subscription were not significant; rather, the intention to retain the premium subscription was determined by the discovery of new content and ubiquity. Contrary to our theorizing, social connectivity did not affect the intention to upgrade but exerted a negative effect on the intention to retain the premium subscription. Finally, the intrusiveness of advertising did not have a significant effect among either sample. Thus, H1, H2, H3a, and H5a were supported while H4a and H6a were rejected.

With respect to the predictors of enjoyment, the discovery of new content had a positive effect among both basic and premium users, whereas social connectivity had no effect. Interestingly, contrary to our theorizing, the intrusiveness of advertising did not have a significant negative effect on enjoyment among the basic users. Ubiquity and price value, in turn, had weak positive effects on enjoyment among basic users but not among the premium users. Overall, there were no significant differences in these relationships between basic and premium users, and thus H3b, H4b, H5b, and H6b were rejected.

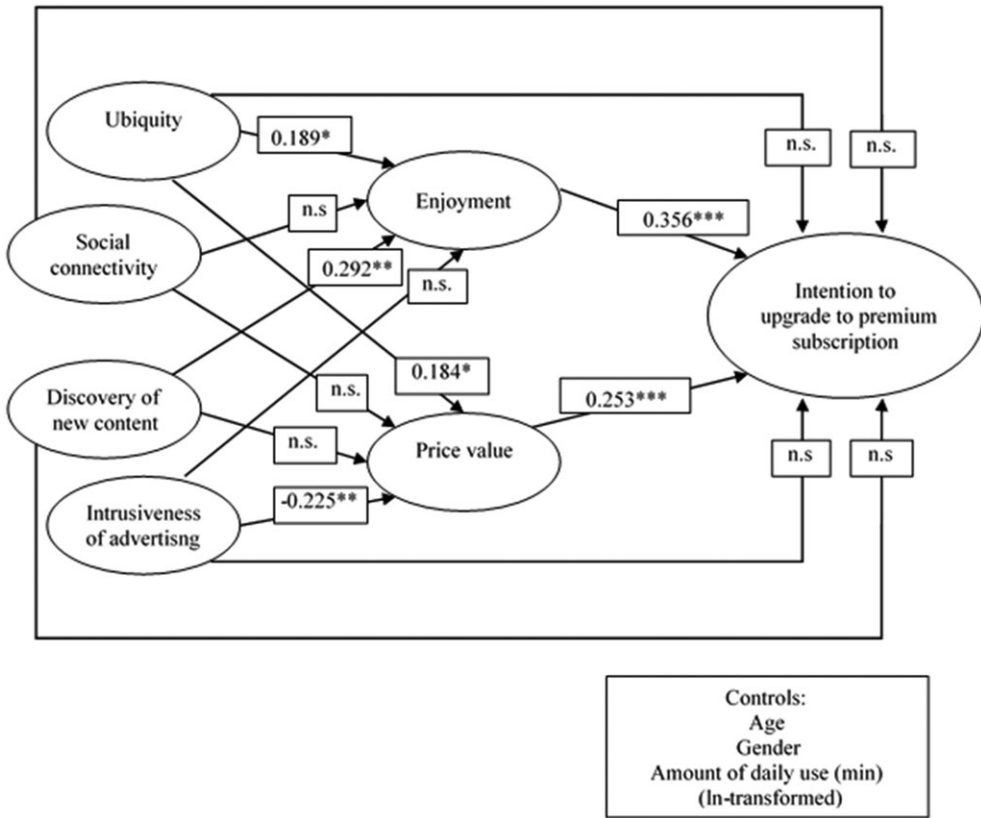


FIGURE 2 Structural model results for the basic user sample

The price value of the premium subscription was predicted by ubiquity and the intrusiveness of advertising among basic users. Interestingly, and contrary to our theorizing, the effect of intrusiveness of advertising was negative. Premium users' price value was, in turn, driven by ubiquity and the discovery of new content. The z-test indicated a statistically significant difference in the effects of ubiquity and intrusiveness of advertising on price value. Thus, H3c and H6c were supported while H4c and H5c were rejected. The results from testing the structural model and the statistical differences in the hypothesized relationships are presented in Table 11.

Taken together, the data support six of our 14 hypotheses. Table 12 summarizes the results of the hypothesis testing.

Finally, since the results for the basic users sample indicated that enjoyment and price value of the premium subscription potentially mediate the effect of the attribute-level values, we examined the mediating effects with a bootstrapping procedure advocated by Zhao, Lynch, and Chen (2010) as well as Preacher and Hayes (2004). The respective results demonstrate that ubiquity (0.118**) and the discovery of new content (0.120*) exerted significant indirect effects on the intention to upgrade.

5 | DISCUSSION

5.1 | Key findings

The findings of this study illustrate how the constellation of values driving basic users' intentions to upgrade is considerably different from the values driving premium users' intentions to retain their paid subscriptions. In fact, the

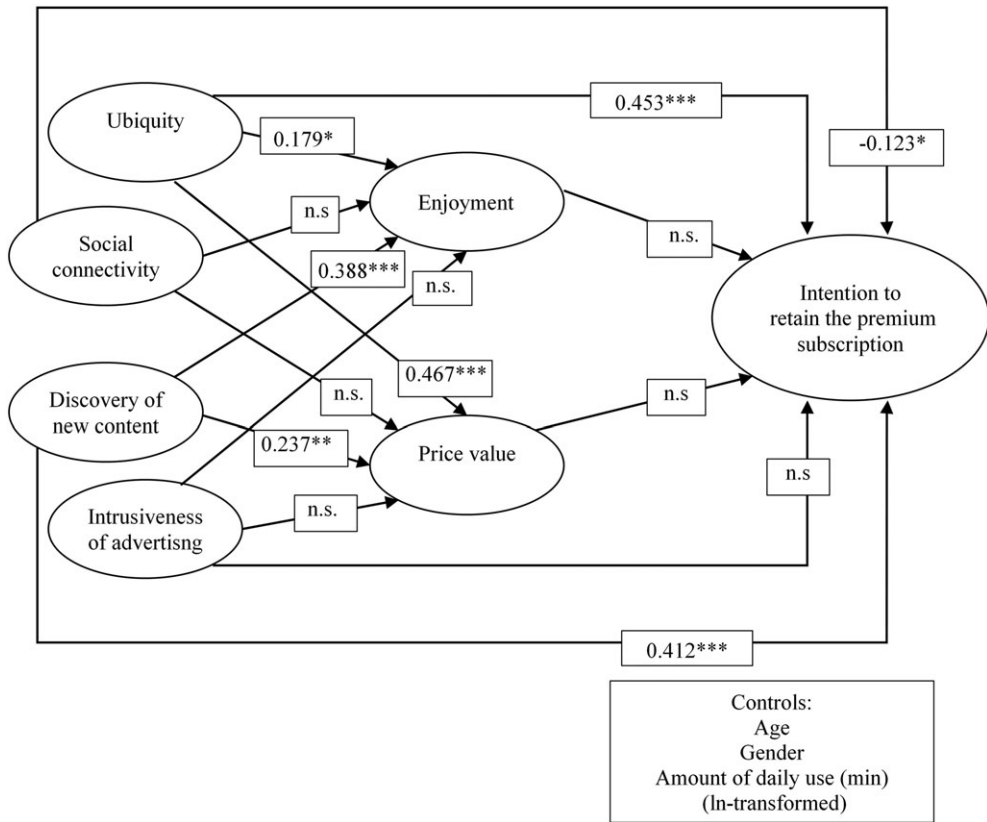


FIGURE 3 Structural model results for the premium user sample

results demonstrate that enjoyment and price value were the only predictors of the intention to upgrade. In contrast, the intention to retain the premium subscription was determined by the discovery of new content and ubiquity, whereas enjoyment and price value had no effect. Below, we highlight six specific *reveatory insights* (Corley & Gioia, 2011) from the study.

First, the observation that enjoyment played a dominant role in predicting the intention to upgrade but had no effect on the intention to retain the premium subscription confirms our assumptions that basic users' decisions to upgrade their existing subscription type is essentially hedonically oriented (cf. Babin et al., 1994; Hirschman & Holbrook, 1982; van der Heijden, 2004). This also empirically supports our theorizing that because of users' limited first-hand experience with the premium features, basic users emphasize benefits such as enjoyment (ie, an overall evaluation of user experience) and price value of the premium subscription (an overall result of the cost benefit analysis) in their decision making. The fact that there was no statistically significant difference between basic and premium users in regard to level of enjoyment further underscores that the specific reasons to upgrade may lie outside of hedonic value. Alternatively, it is also possible that basic users' evaluations of enjoyment are particularly inflated by the ZPE (Niemand et al., 2015; Shampanier et al., 2007). With respect to the drivers of enjoyment, discovery and ubiquity had a positive effect among both basic and premium samples, whereas the social connectivity and intrusiveness of advertising had no effect among either sample.

Second, in line with our theorizing, the price value of the premium subscription had a positive effect on the intention to upgrade but no effect on the intention to retain the premium subscription. However, we observed that premium users experience higher levels of price value than basic users. Together, these two observations suggest that when the premium subscription exhibits a sufficiently good price value, decisions regarding the retention of the premium subscription are based on attribute-level values—for example, ubiquity and the discovery of new content.

TABLE 11 Results of the structural model and the z-test

Relationship	Basic Subscription	Premium Subscription	Z-Test Result
Enjoyment → Intention to upgrade to premium subscription/Intention to retain the premium subscription	0.356***	n.s.	n/a ^a
Price value of the premium subscription → Intention to upgrade to premium subscription/Intention to retain the premium subscription	0.253***	n.s.	na
Ubiquity → Intention to upgrade to premium subscription/Intention to retain the premium subscription	n.s.	0.453***	n/a
Discovery of new content → Intention to upgrade to premium/Intention to retain the premium subscription	n.s.	0.412***	n/a
Social connectivity → Intention to upgrade to premium subscription/Intention to retain the premium subscription	n.s.	-0.123*	n/a
Intrusiveness of advertising → Intention to upgrade to premium subscription/Intention to retain the premium subscription	n.s.	n.s.	n/a
Ubiquity → Enjoyment	0.189*	0.179*	n.s.
Social connectivity → Enjoyment	n.s.	n.s.	n.s.
Discovery of new content → Enjoyment	0.292**	0.388***	n.s.
Intrusiveness of advertising → Enjoyment	n.s.	n.s.	n.s.
Ubiquity → Price value	0.184*	0.467***	-2.446**
Social connectivity → Price value	n.s.	n.s.	n.s.
Discovery of new content → Price value	n.s.	0.237***	n.s.
Intrusiveness of advertising → Price value	-0.225**	n.s.	-2.064*

*** $P < .001$; ** $P > .01$; * $P < .05$;

^az-test not applicable.

n.s. not significant.

Third, the difference in the effect and level of the discovery of new content is particularly interesting in our context because the curated content and the search and recommendation features are available to both basic and premium users. However, because the premium users also have exclusive access to new content, they arguably benefit from the recommendation features more than basic users. Hence, the discovery of new content is a key factor contributing to the decision to continue using the premium version of the service.

Fourth, our results demonstrate differences in both the level of ubiquity between basic and premium users and its effect on basic users' intention to upgrade and premium users' intention to retain the premium subscription. This implies that the measures used by a freemium service provider to differentiate the basic and premium versions based on ubiquity may create the desired lock-in effect among premium users.

Fifth, contrary to our theorizing, social connectivity had no effect on the intention to upgrade. Interestingly, social connectivity exerted a small, albeit statistically significant, negative effect on the intention to retain the premium subscription. Furthermore, concerning the level of social connectivity, we detected no differences between the two user groups. Collectively, these observations contrast with Oestreicher-Singer and Zalmanson (2013, p. 594) who maintain "[c]ontent is inherently a social experience. Content providers create social experiences in which the user creates a personal online identity and interacts with others. This social experience takes center stage on the website, replacing content." In fact, our results particularly underscore the importance of content-related factors such as ubiquity and the discovery of new content to retain the premium users. As a result, while creating social connections between users is a widely applied strategy that is used to foster sustained user engagement and lock-in among digital content services (Oestreicher-Singer & Zalmanson, 2013), and prior research offers empirical evidence that

TABLE 12 Summary of hypothesis testing

Hypothesis	Outcome
H1: The effect of enjoyment on the intention to upgrade is stronger than on the intention to retain the premium subscription.	Supported
H2: The effect of price value on the intention to upgrade is stronger than on the intention to retain the premium subscription.	Supported
H3a: The effect of ubiquity is stronger on the intention to retain the premium subscription than on the intention to upgrade.	Supported
H3b: The effect of ubiquity on enjoyment is moderated by subscription type, such that the effect will be stronger among premium users.	Not supported
H3c: The effect of ubiquity on price value is moderated by subscription type, such that the effect will be stronger among premium users.	Supported
H4a: The effect of social connectivity is stronger on the intention to retain the premium subscription than on the intention to upgrade.	Not supported
H4b: The effect of social connectivity on enjoyment is moderated by subscription type, such that the effect will be stronger among premium users.	Not supported
H4c: The effect of social connectivity on price value is moderated by subscription type, such that the effect will be stronger among premium users.	Not supported
H5a: The effect of the discovery of new content is stronger on the intention to retain the premium subscription than on the intention to upgrade.	Supported
H5b: The effect of the discovery of new content on enjoyment is moderated by subscription type, such that the effect will be stronger among premium users.	Not supported
H5c: The effect of the discovery of new content on price value of the premium subscription is moderated by subscription type, such that the effect will be stronger among premium users.	Not supported
H6a: The effect of intrusiveness of advertising has a stronger effect on the intention to upgrade than on the intention to retain the premium subscription.	Not supported
H6b: The effect of intrusiveness of advertising on enjoyment is moderated by subscription type, such that the effect will be stronger among basic users.	Not supported
H6c: The effect of intrusiveness of advertising on the price value of the premium subscription is moderated by subscription type, such that the effect will be stronger among basic users.	Not supported

connections with other users increase users' likelihood of purchasing the premium subscription (Bapna & Umyarov, 2015), our results imply that the implementation of this strategy entails surprising challenges.

Finally, in contrast with our hypothesis, intrusiveness of advertising in the free subscription had a significant negative impact on the price value of the premium subscription among the basic users. Since the intention to upgrade is driven by price value, intrusiveness of advertising has a detrimental indirect effect on basic users' intentions to upgrade to the premium subscription. This exemplifies the specific challenges related to employing the so-called strategic inconvenience (Barnett, 2012) in differentiating between the free and premium versions.

5.2 | Theoretical implications

This study's theoretical contribution stems from three main sources. First, we focus on an academically largely unexplored yet managerially highly relevant phenomenon related to freemium services by investigating two highly business-critical problems faced by operators of freemium services: how to reinforce conversion from free to premium subscriptions and how to retain the premium users. As pointed out by Corley and Gioia (2011) and Hambrick (2007), focusing on a relevant practical problem not only strengthens the practical utility of the study but is a good starting point for theory development and making a theoretical contribution. Moreover, the extant literature on user

behavior in freemium services (Bapna & Umyarov, 2015; Mäntymäki & Salo, 2015; Vock et al., 2013; Wagner et al., 2014) provides only fragmented pieces of empirical research with little effort toward an integrative theoretical understanding of the role and influence of consumption values in consumer decision making in freemium services. Due to this lack of theory, our study initiates a new discussion on freemium consumer behavior and thus is well positioned to make a theoretical contribution based on the revelatory insights (Corley & Gioia, 2011; Huff, 1999; Weber, 2003; Weber, 2012) in the area of freemium service users' post-adoption behavior.

With regard to the second source of theoretical contributions, we have presented a research model that contains new, unexplored constructs, theorize on the associations between the constructs, and empirically test these associations. As pointed out by Whetten (1989, p. 493) "theoretical insights come from demonstrating how the addition of a new variable significantly alters our understanding of the phenomena by reorganizing our causal maps." Furthermore, Corley and Gioia (2011) state that interesting, revelatory insights are a key ingredient of a theoretical contribution. To this end, we have introduced and empirically investigated two novel dependent variables, the intention to upgrade to premium and the intention to retain the premium subscription, which enables a differentiated analysis of basic and premium users' decision making.

As we have theorized, the intention to upgrade from free to the premium subscription and the intention to retain the premium subscription are driven by different sets of consumer values. This aligns with the notion that that value perceptions have differential effects on online purchase decisions between potential and repeat customers (Gupta & Kim, 2007; Kim & Gupta, 2009).

Furthermore, we have developed two new independent variables, the discovery of new content and social connectivity, that are highly relevant for a wide range of digital content services. As a result, this study adds to the prior literature on people's motives for consuming hedonic digital content online (Bhattacharjee, Gopal, Lertwachara, & Marsden, 2006; Kunze & Mai, 2007; Molteni & Ordanani, 2003; Sanchez-Franco & Rondan-Cataluña, 2010; Sjöblom & Hamari, 2017).

Finally, we have introduced intrusiveness of advertising as an important independent variable to investigate the strategic inconvenience (Barnett, 2012) in freemium services (cf. Wagner et al., 2014). The negative effect of intrusiveness of advertising on price value of the premium subscription implies that using advertising to create strategic inconvenience to differentiate the free and premium subscription may lead to undesirable consequences.

For the third theoretical contribution, by examining the differences between basic and premium users, we explicitly incorporate user subscription type as a moderating variable in the analysis of freemium users' post-adoption behavior. Hence, this study advances the prior literature by providing a more nuanced understanding of the motivational and cognitive mechanisms affecting users' decision making regarding their post-adoption engagement with freemium services. Considering the pervasiveness of the freemium model across industries, this study extends the investigative locus of the prior IS literature on online service users' post-adoption behaviors (Kim & Son, 2009, Saeed & Abdinnour, 2013, Pan et al., 2017, Parthasarathy & Bhattacharjee, 1998, Li, Hongxiu & Liu et al., 2014) and online service continuance (Bhattacharjee, 2001a; Islam et al., 2017; Li et al., 2015; Mäntymäki, Merikivi, Verhagen, Feldberg, & Rajala, 2014; Zhou et al., 2012).

Collectively, our results empirically corroborate our key thesis that dimensions of consumer value have differential effects on the basic users' decision to upgrade from free to the premium subscriptions and the premium users' decision to retain their premium subscriptions. In particular, our results show that the intention to retain the premium subscription is driven by attribute-level value dimensions such as ubiquity, the discovery of new content, and social connectivity whereas the intention to upgrade is driven by the benefits, ie, price value and enjoyment. By detecting the differential effect of enjoyment in driving the intention to upgrade and the intention to stay premium, our results advance the understanding of the role of enjoyment as a predictor of sustained user engagement and purchasing behavior in the context of hedonic freemium services (cf. Krause et al., 2014; Mäntymäki & Salo, 2011). Taken together, by providing an empirically tested theoretical framework for a differentiated analysis of the role of consumer value dimensions in basic and premium users' post-adoption behavior and as well as investigating the interrelationships among the consumer value dimensions, this study significantly advances the consumer value

theory (egChiu et al., 2014; Paul et al., 2009; Piyathasanan, Mathies, Wetzels, Patterson, & de Ruyter, 2015; Turel et al., 2010) to accommodate the freemium model. Table 13 summarizes the key contributions.

5.3 | Implications for practice

First, our study adds to the emerging research on the role and influence of the social features of streaming-based digital content services (Krastel, Bassellier, & Ramaprasad, 2015), illustrating that despite its pervasiveness, the incorporation of social features into digital content services is not a panacea. In fact, with respect to the consumption of digital content, the willingness of users to interact with others can be highly context specific and situation specific. The low scores for social connectivity, compared with other dimensions of value alongside its nonsignificant impact on the intention to upgrade and enjoyment, and particularly its negative effect on the intention to retain the premium subscription, imply that social features do not create the desired lock-in effect and may even be considered an

TABLE 13 Key contributions

Source of Contribution	Description	Area of Contribution
Academically underexplored, but practically highly relevant phenomenon around freemium business model (Corley & Gioia, 2011, Hambrick, 2007, Weber, 2012)	Expansion of freemium models across service categories. Fragmented state of the extant literature on freemium model, particularly from a user behavior vantage point.	Freemium literature (Hamari et al., 2017; Mäntymäki & Salo, 2015; Shi et al., 2015)
New constructs (Whetten, 1989)	Introduction of two new, freemium-specific dependent variables: intention to upgrade to premium (basic users) and intention to retain the premium subscription (premium users). Introduction and development of two new constructs: social connectivity and the discovery of new content. Introduction of intrusiveness of advertising (Li, Hairong, et al. 2002) in the basic subscription to capture the psychological cost associated with using the free basic version. Introduction, theorization, and empirical testing of a highly relevant moderating variable: user's subscription type.	Freemium consumer behavior literature (Koch & Benlian, 2017; Wagner et al., 2014) Consumer value in digital content services (Bhattacharjee et al., 2006, Kunze & Mai, 2007, Molteni & Ordanini, 2003, Sanchez-Franco & Rondan-Cataluña, 2010, Sjöblom & Hamari, 2017).
Novel associations between constructs (Whetten, 1989)	Provision of an empirically tested theoretical framework for a differentiated analysis of the role of consumer values between basic and premium users' decision making.	IS Post-adoption user behavior (egKim & Son, 2009; Pan et al., 2017; Parthasarathy & Bhattacharjee, 1998) Online service continuance (egBhattacharjee, 2001a; Li et al., 2015; Zhou et al., 2012). Consumer value theory (Chiu et al., 2014, Paul et al., 2009, Piyathasanan et al., 2015, Turel et al., 2010)

unnecessary add-on. Hence, widely used social features, such as automatically generated social media updates, may be seen to increase the influx of low-value information and may, in fact, irritate users.

As a result, we encourage the designers of digital content services to critically evaluate the types of social features that add value to the user experience. Instead of the mechanistic implementation of social features, service operators should closely consider the use context and values that users seek. Taken altogether, our implications for practice align with the views of Oestreicher-Singer and Zalmanson (2013), who called for a more strategic approach to the integration of social interaction into digital content services. Alternatively, when considering the widespread adoption of social features and social media integration, digital content service providers should note that offering a clean, streamlined user experience without pseudo-social clutter could be a means to differentiate themselves and gain a competitive advantage.

Second, we found that ubiquity and the discovery of new content are the main predictors of the intention to retain the premium subscription. This observation implies that the design features related to these two values are critical for premium users when forming their intention to continue with the premium status. Moreover, the results show that the discovery of new content has a positive effect on enjoyment among both basic and premium users. Thus, to foster an enjoyable user experience and retain paying users, we suggest that the designers of freemium digital content services should place particular emphasis on design features that add value to these two dimensions. This, in turn, highlights the importance of differentiating the features in a way that creates a sufficient value increase from basic to premium subscription in terms of ubiquity and the discovery of new content.

5.4 | Limitations and future research

As is true of most empirical research, our results are subject to interpretation and are limited to the data available. However, the limitations of the study offer avenues for further research. First, because the data were collected from one service that employs a subscription-based freemium model and one country, additional research with a broader contextual coverage is needed to increase the generalizability of the results. For example, some freemium services feature multiple tiers of premium subscriptions with differentiated benefits as well as hybrid models featuring both premium subscriptions (Shi et al., 2015) and microtransactions (Mäntymäki & Salo, 2015). To obtain more fine-grained insights into the effect of subscription type on users' decision making and their perceived levels of value across different subscription types, future research could examine freemium services that employ a multitiered freemium model.

Second, the results imply that optimizing basic users' level of enjoyment is a key element of the successful employment of the freemium model in the context of hedonic freemium services. To this end, future research identifying new features and interventions that can be fine-tuned to produce precisely the desired change in enjoyment level or other focal outcomes would be highly relevant.

Third, in addition to upgrading from the free to premium subscription and retaining the current premium subscription, there are other freemium-specific, post-adoption behaviors that warrant investigation. For example, future research could examine basic users' status quo with the free subscription as well as downgrading from the premium to the basic free subscription or abandoning the service completely.

Fourth, while the price value construct captured the monetary cost related to the premium subscription, our model did not account for the nonmonetary costs associated with the free basic subscription, such as exposure to commercials. Future studies should incorporate this aspect into the research designs to more accurately investigate the perceptions of costs between the basic and premium subscriptions.

Fifth, while ZPE is likely to have a positive effect on people's evaluations of the free versions of freemium offerings, our study did not control the effect of ZPE on freemium users' value perceptions and decision making. In fact, controlling for the specific effect of ZPE with a survey-based research is challenging. Therefore, future studies could explore different ways to empirically measure ZPE and its influence on freemium users' value perceptions and decision making.

6 | CONCLUSION

This study has focused on the two most revenue-critical user behaviors for freemium service operators: basic users' upgrading to the premium subscription and premium users' retention of their premium subscriptions. Building on the TCV and MEC, we have theorized and empirically examined the differential effects of emotional, functional, social, epistemic, and economic values on basic users' decisions to upgrade to the premium subscription and premium users' decisions to retain their paid subscriptions. The results suggest that the intention to upgrade is a product of a more deliberate cost-benefit analysis than the intention to retain the premium subscription. The results also imply that the intention to retain the premium subscription is influenced by attribute-level value perceptions such as ubiquity, the discovery of new music, and social connectivity while the intention to upgrade is driven by the benefits ie, enjoyment and price value of the premium subscription.

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APPENDIX A: SUMMARY OF THE BENEFITS OF SPOTIFY'S AND DEEZER'S PREMIUM USER ACCOUNTS

Added benefit	Description	Spotify	Deezer
No commercials	With the premium account, commercials do not interrupt listening.	✓	✓
Unlimited skipping of songs when using the mobile application	With the basic account, the user can skip a maximum of five songs per hour.	✓	✓

(Continues)

Added benefit	Description	Spotify	Deezer
Ability to select individual songs when using the mobile application	For mobile devices, the basic account offers shuffle play only.	✓	✓
Enhanced audio quality	The premium account offers improved audio quality.	✓	✓
Offline listening	Playlists can be downloaded to a mobile phone, tablet, or computer for offline listening.	✓	✓
Exclusive new releases	New songs and albums are prereleased for premium account holders.	✓	✓

APPENDIX B: THE SURVEY INSTRUMENT

Construct	Item	
	Using Spotify. . .	
Ubiquity (Okazaki & Mendez, 2013)	UBI1	. . . allows me to listen to music with the device I prefer at that moment
	UBI2	. . . allows me to listen to music wherever I am
	UBI3	. . . allows me to listen to music when it suits me best
	UBI4	. . . allows me to find and listen to a song that I have just thought about ^a
	UBI5	. . . makes me nondependent on having music downloaded to a device ^a
Discovery of new content (new scale)	DISCO1	. . . helps me find music to fit my taste
	DISCO2	. . . broadens my taste in music
	DISCO3	. . . helps me discover music I would not normally listen to
	DISCO4	. . . allows me to discover artists/bands that I have not been aware of before
	DISCO5	. . . provides me with music recommendations that suit my preferences ^a
	DISCO6	. . . helps me stay up to date with new releases by my favorite artistes ^a
Social connectivity (new scale)	SOC1	. . . allows me to see what kind of music other people listen to
	SOC2	. . . allows me to connect with other people with similar musical preferences
	SOC3	. . . allows me to share my favorite music with other people
Enjoyment (Davis et al., 1992)	ENJ1	. . . is enjoyable
	ENJ2	. . . is pleasant
	ENJ3	. . . is fun
Price value of the premium subscription (Sweeney & Soutar, 2001)	PRICE1	The Spotify Premium Subscription (worth € 9.99 per month) offers good economic value.
	PRICE2	Overall, I am happy with the price of the Spotify Premium Subscription.

(Continues)

Construct	Item	
	PRICE3	The price of the Spotify Premium Subscription is too high, given what it gives in return.
Intention to upgrade/retain the premium subscription (Bhattacharjee, 2001b)	PREMIUM1	I plan to upgrade to Spotify Premium subscription/continue with my Spotify Premium subscription in the next three months.
	PREMIUM2	I will upgrade to Spotify Premium subscription/continue with my Spotify Premium subscription in the next three months.
	PREMIUM3	I intend to upgrade to Spotify Premium subscription/continue with my Spotify Premium subscription in the next three months.
Intrusiveness of advertising in the free subscription (Li et al., 2002)	Commercials in Spotify's free subscription are ...	
	COMMER1	... distracting
	COMMER2	... intrusive.
	COMMER3	... annoying.

^aItem omitted from measurement due to loading <0.7.

APPENDIX C: THEMES AND INTERVIEW EXCERPTS CONCERNING THE DISCOVERY OF NEW CONTENT

Theme	Excerpts
Meeting your music preferences	<p>"I can find artists and bands based on my preferences. So, it seems Spotify uses my listening history to make these recommendations. Anyway, they are often spot on, at least to me."</p> <p>"Because of the recommendations, Spotify helps me find artists I wouldn't listen to otherwise. Often, these recommendations are very good; so, even though I haven't listened to that artist before, I often like those that Spotify recommends."</p> <p>"I would say that, for me, the recommendation function is the main thing. The band recommendations but also the Spotify-made playlists . . . I like those very much. I really like what I get from them . . . I get the type of music I like but not the same bands and songs all the time . . . Often, when I listen to my own mp3s, I tend to listen to a small number of my top favorite songs over and over again . . . So, Spotify adds some more variety there."</p>
Introducing new music	<p>"I think coming across all these new bands and stuff . . . Well, . . . it has kind of opened my eyes to the different kinds of music there are."</p> <p>"Basically, I like certain types of music . . . mostly, I listen to classic rock, but I have started listening to the ready-made playlists. And I sort of like that . . . to get to know new bands I've never heard of."</p>
New releases	<p>"Nowadays, I don't have that much time to stay updated on what is happening in the music scene . . . What I like is to hear new songs. Sometimes, new songs are available exclusively on Spotify before they are officially published and played on the radio, etc. So, I like that feeling of staying up to date, even though I'm not that deeply involved in music anymore."</p> <p>"These days, there are more and more new releases that come to Spotify first. Many times, I have heard a new song on Spotify first."</p>

APPENDIX D: THEMES AND INTERVIEW EXCERPTS CONCERNING SOCIAL CONNECTIVITY

Theme	Excerpts
Following other users	<p>"I follow some of my friends who I know are very active concerning music so as to stay updated on what they are listening to."</p> <p>"Following other people's playlists is quite a neat feature. I have seen there are some users whose playlists have a great many followers. By following 'power users,' you can get information about what is hot and what is not."</p>
Connecting and community	<p>"In principle, all the social stuff could come in handy for getting in touch with people who have similar tastes in music to me. But I am not sure if Spotify is quite there yet or if people are really ready for this kind of feature."</p> <p>"I guess the idea is to create a sort of community effect by letting people connect with one another."</p>
Sharing playlists	<p>"I spend quite a lot of time listening to music in general. I have created many public Spotify playlists that I update regularly."</p> <p>"I feel sharing my playlists with other users is one way to interact on Spotify."</p>

APPENDIX E: RESULTS FROM THE PRINCIPAL COMPONENT ANALYSIS FOR BASIC USER SAMPLE (VARIMAX ROTATION)

	1	2	3	4	5	6
DISCO1	.830	.109	-.070	.250	-.059	.005
DISCO2	.845	.104	.001	.008	-.084	.053
DISCO3	.870	.025	.064	.004	-.032	.125
DISCO4	.851	.089	.071	.066	.087	.031
DISCO5	.544	.166	.043	.150	-.053	.352
DISCO6	.574	.210	.006	.330	-.001	.203
UBI1	.053	.853	.031	.027	-.038	.148
UBI2	.051	.868	.074	-.029	-.119	-.046
UBI3	.105	.817	.182	.084	-.072	-.107
UBI4	.318	.520	.069	.203	.058	.075
UBI5	.157	.655	-.013	.322	.088	-.005
INTRU1	.069	.152	.896	.102	-.123	-.016
INTRU2	.032	.087	.894	.196	-.050	-.008
INTRU3	.017	-.049	-.900	-.122	.165	-.034
PRICE1	.108	.033	.119	.845	-.034	.035
PRICE2	.169	.181	.184	.845	-.055	-.028
PRICE3	.158	.159	.138	.805	-.015	.057
ENJ1	-.019	-.001	-.075	.029	.921	-.060
ENJ2	-.075	-.069	-.134	-.098	.826	-.024

(Continues)

	1	2	3	4	5	6
ENJ3	.010	-.025	-.101	-.015	.868	-.136
SOC1	.155	-.033	.081	.114	-.032	.786
SOC2	.096	.052	-.082	-.060	-.116	.831
SOC3	.110	-.009	.000	.003	-.064	.894

Bolded data indicates item loadings on their theoretical constructs. This is the standard protocol to present such statistics.

APPENDIX F: RESULTS FROM THE PRINCIPAL COMPONENT ANALYSIS FOR PREMIUM USER SAMPLE (VARIMAX ROTATION)

	1	2	3	4	5	6
DISCO1	.785	.313	-.019	.014	.234	-.001
DISCO2	.770	.240	-.028	.173	.162	.118
DISCO3	.752	.258	-.103	.111	.230	.148
DISCO4	.778	.301	-.084	.106	.115	.087
DISCO5	.757	.138	-.091	.098	.127	.024
DISCO6	.690	.001	-.046	.181	-.008	.169
UBI1	.217	.811	-.093	.263	.077	.086
UBI2	.082	.869	-.102	.264	.136	.024
UBI3	.235	.844	-.122	.164	.073	.004
UBI4	.345	.757	-.051	.018	.149	-.025
UBI5	.355	.630	.065	.182	.259	.064
INTRU1	-.107	-.117	.933	.019	-.065	-.051
INTRU2	-.075	.003	.845	-.163	.054	.011
INTRU3	-.062	-.123	.909	-.082	.029	-.108
PRICE1	.199	.347	-.072	.806	.206	.020
PRICE2	.135	.164	-.070	.915	-.014	-.018
PRICE3	-.215	-.220	.122	-.794	-.003	.074
ENJ1	.166	.077	.080	.006	.825	.135
ENJ2	.246	.151	-.029	.073	.765	-.022
ENJ3	.130	.201	-.030	.052	.835	.067
SOC1	.147	.058	.004	.019	.004	.807
SOC2	.050	-.051	-.078	-.024	.077	.836
SOC3	.144	.081	-.060	-.056	.088	.852

The bolded data highlights the item loadings on the intended theoretical constructs. This is a standard protocol to report such statistics.