



The effects of gamified customer benefits and characteristics on behavioral engagement and purchase: Evidence from mobile exercise application uses

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ABSTRACT

This study investigates how gamified customer benefits (epistemic, social integrative, and personal integrative) and customer characteristics (age and experience) influence marketing outcomes, behavioral engagement and purchase, in exercise context. Using a unique data set of exercise and purchase history created by 5072 smartphone users over three years in South Korea, this study finds that although all three customer benefits are positively associated with marketing outcomes, personal and social integrative benefits are the best predictors for engagement and purchase, respectively. Furthermore, the effects of gamified customer benefits on marketing outcomes vary by age and experience, showing the importance of epistemic and personal integrative benefits to older and less experienced customers and social integrative benefits to younger and experienced customers. This study not only explores the long-term effects of gamification on behavioral outcomes but also examines the feasibility of successfully implementing the gamification benefit proposition strategy for superior marketing outcomes.

1. Introduction

Due to increasing interest in personal health, 55 million and 141 million American people participate in fitness/health clubs and outdoor physical activities, respectively (Outdoor Industry Association, 2015). Recently, the mobile apps market has seen a proliferation of healthcare-related apps, and exercise and fitness apps are the most popular, accounting for 39% of mobile health apps (Aitken & Gauntlett, 2013). Exercise apps include a range of features for monitoring and managing one's own exercise records, the so-called "quantified self" (Wolf, 2009) or 'personal informatics' tools, for collecting, and reflecting upon information about the self (Li, Dey, & Forlizzi, 2010). To increase engagement, exercise apps adopt gamified features because health gamification can support behavior change (King, Greaves, Exeter, & Darzi, 2013; Munson, Poole, Perry, & Peyton, 2015; Pereira, Duarte, Rebelo, & Noriega, 2014). For example, Nike + tracks measured physical exercise into "NikeFuel points" which later can be used in competitions with friends; and *Zombies, Run!* motivates runners via wrapping runs incorporated into an audio-delivered story of surviving a Zombie apocalypse.

Research confirms why gamification of exercise apps is relevant to

health behavior and indeed why online games are valuable (Hamari & Keronen, 2017). According to self-determination theory, the desire to engage in a particular behavior is based upon intrinsic and extrinsic motives (Calder & Shaw, 1975). Intrinsic motives lead to rewards that are internal to the individual whereas extrinsic motives lead to external rewards or punishment (Deci & Ryan, 1985). In the exercise context, gamified exercise apps can motivate initiation and performance of health behaviors extrinsically – via social recognition and accumulation of material gains (e.g. rewards), and intrinsically – via personal goals and enjoyment (Davis & Cowles, 1991). Further, as greater audiences play, game design elements become more appealing (Hamari & Keronen, 2017; King et al., 2013). Gamified exercise apps practically encompass all trackable everyday activities, whereas serious health games require people to dedicate time and space to their engagement (Munson et al., 2015). However, engaging with gamified apps can contribute to well-being by generating positive experiences in terms of basic psychological need satisfaction and emotions, such as engagement or accomplishment (McGonigal, 2011; Pereira et al., 2014). Indeed, through implementing customer-gearred gamification elements, app providers can enhance customer experiences and motivate them to continue physical exercise.

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Yet, with these promises in mind, questions remain such as how app providers should implement gamification in sustainable and profitable ways: and specifically, which gamification benefit proposition, especially non-monetary benefits, can strengthen deeper behavioral engagement, and facilitate subsequent product purchase? And, further, how may the effects of gamified customer benefits on marketing outcomes vary by customer characteristics? These questions are relevant as research needs to ascertain how non-monetary benefits (and financial rewards) impact marketing outcomes (Hofacker, de Ruyter, Luire, Manchanda, & Donaldson, 2016). Further, prior research has indicated effects of gamification mainly related to engagement behaviors (Harwood & Garry, 2015), and effectiveness of gamification may vary across different customer traits (Hofacker et al., 2016).

The objectives here are to explore empirically, how gamified customer benefits affect two marketing outcomes: engagement behavior via continued use of an exercise app and purchase behavior of exercise-related products; and how customer characteristics moderate the effects of gamification benefits on marketing outcomes. To identify different types of gamified customer benefits, we employ the “uses and gratifications” model (Katz, Blumler, & Gurevitch, 1974), a framework widely used in the communication field. Researchers have used this model to examine how different benefits shape media-usage behavior (Palmgreen, 1984) and inculcate customer participation in value co-creation (Nambisan & Baron, 2009). Here, we propose that epistemic, social integrative, and personal integrative benefits will shape actual customer engagement and purchase behaviors in an exercise app environment. As customer-related moderators, we employ two customer traits: age and experience. Research shows that the effects of technology design on customer acceptance depend on these traits (Venkatesh, Thong, & Xu, 2012), and the importance of different game features vary in older versus young customers (Park & Lee, 2011).

To address these issues, we constructed a data set of exercise and purchase activities from 2013 to 2015 (three years) created from 5072 smartphone users who installed ‘Trangle’ – South Korea’s most popular exercise app. It enabled us to offer an accumulated set of indices that benchmarks not only customers’ exercise but also their product purchase behavior. To our knowledge, this is the first research to examine the feasibility of successfully implementing the gamified benefit proposition strategy while taking into account promoting customer exercise engagement (i.e., public health) and product purchases (i.e., firm benefit). Following is the theoretical background for the study on gamified exercise service and several research hypotheses about the effectiveness of gamified customer benefits and customer characteristics. We then report an empirical study that tests the hypotheses. Lastly, based on the findings, we provide theoretical and managerial implications.

2. Literature review and hypotheses

2.1. Exercise motivation and gamification

Extant research shows that gamification i.e., the use of game design elements in non-game contexts (Deterding, 2015), increases customer benefits and encourages benefit-creating behaviors such as loyalty, customer engagement, and motivation (Blohm & Leimeister, 2013). Admittedly, this does represent a limited view relative to the needs of our research and we acknowledge that more time could be spent on definitional issues (Morschheuser, Hamari, Koivisto, & Maedche, 2017). In an exercise context, activity trackers and smartphones are equipped with powerful sensing, processing, storage, and display capacities, so they provide platforms to extend a game layer to everyday exercise behaviors (King et al., 2013). Like games, gamified exercise apps employ a broad range of game design elements such as generation of points, badges, leaderboards, and of course social interaction. Recent health studies have mainly focused on rewards, accounting for 84% (16 of 19 studies between 2012 and 2016), and indicate strong evidence

that reward drive health behavior (Johnson et al., 2016). For example, rewards such as points and achievements are associated with improvement in desire to exercise (Hamari & Koivisto, 2015), or increased physical activity and sense of empowerment, for example, among rheumatoid arthritis patients (Allam, Kostova, Nakamoto, & Schulz, 2015). Riva, Camerini, Allam, and Schulz (2014) note the positive impact of points with leaderboards on health outcomes such as lowered pain burden and increased exercise.

The idea of rewards from gamified products leads to motivation and its categories. Use of financial rewards is based on extrinsic motivation. Such extrinsic activity is done for an outcome (e.g., material gains) separable from the activity itself (e.g., exercise), which may thwart autonomy need satisfaction and give rise to the experience of unwillingness and tension (Deci & Ryan, 2012). Contrariwise, intrinsically motivated activity is done for its own sake, which satisfies basic psychological needs for autonomy, competence, and relatedness, giving rise to the experience of willingness and enjoyment (ibid). It is demonstrable that intrinsic motivations offer more advantages than extrinsic motivations with regard to health behavior (Fortier, Duda, Guerin, & Teixeira, 2012; Patrick & Williams, 2012). However, Blohm and Leimeister (2013) argue that this effect may occur with game-specific symbolic rewards (e.g., points or badges) because their collection helps show progress toward personal goals, facilitate social interaction with peers, and may function as an instrument of social recognition within a community. Therefore, these rewards, i.e., points and badges, or so called symbolic capital, serve as both extrinsic and intrinsic motivations (Hofacker et al., 2016).

2.2. Research model for exercise gamification

Gamification offers opportunity to generate non-monetary benefit propositions for consumers, in addition to the reward benefits (Hofacker et al., 2016). In order to identify such non-monetary benefits, we apply the uses and gratifications (U&G) framework, which proposes that media users are goal-oriented and proactively select media to obtain different types of benefits (Katz, Blumler, & Gurevitch, 1973). That is, media users seek out a particular media source to gratify their needs and wants because there are alternative choices for their gratifications. As the U&G theory assumes that people obtain benefits from their use of a new media (Weibull, 1985), it has been applied to new media contexts including the Internet (Stafford, Stafford, & Schkade, 2004), social media (Malik, Dhir, & Nieminen, 2016) and various gaming services, such as online games (Wu, Wang, & Tsai, 2010), social mobile games (Wei & Lu, 2014) and mobile augmented reality games (Rauschnabel, Rossmann, & tom Dieck, 2017). If users obtain benefits from the usage of a new media (i.e., gratifications), they will use the new media more frequently, leading to an increase in users’ continuance use intention (i.e., engagement) with the new media (Weibull, 1985).

The U&G concept moves from exploring what media does to users toward what users do with media (Palmgreen, Wenner, & Rosengren, 1985). That is, the gratification processes take place within the interactions among media structures, social structures and the individual characteristics of media use (Palmgreen et al., 1985; Weibull, 1985). Customer benefits derived from media usage can be classified into three categories (Katz et al., 1974; Nambisan & Baron, 2009): (1) epistemic benefits, such as information acquisition and increasing users’ understanding of the environment; (2) social integrative benefits that relate to strengthening users’ relationships with others; and (3) personal integrative benefits that relate to strengthening credibility and social status among others. Here, the primary focus is on exercise app users’ behavior and on how different types of gamified customer benefits shape users’ engagement and purchase behavior. Whereas prior U&G studies have focused on how individuals use media (Rubin, 2002), exercise apps indicate dynamic audience activities compared to traditional media (Gerlich, Drumheller, Babb, & De’Arno, 2015; Levy & Windahl, 1984). Due to the behavioral nature of exercise apps, the

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