Gamification and Mobile Marketing Effectiveness

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Abstract

A variety of business sectors have been buffeted by the diffusion of mobile technology, a trend that presents a variety of difficult challenges but interesting opportunities to marketers. One such opportunity is gamification, which, one hopes, will enhance appeal to mobile consumers. Our sense from both personal experience and the literature is that the gamified mobile apps currently offered by firms mostly miss the mark. We provide a systematic overview of game design and note how principles derived from that field are highly applicable to gamification in mobile marketing settings. We are aided by the work of Schell (2008), whose Elemental Game Tetrad Model allows us to offer a coherent look at how gamification should affect mobile marketing outcomes.
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Keywords: Gamification; Gaming; Mobile; Retailing; Game design; Story; Mechanics; Aesthetics; Technology

Introduction

Mobile marketing, defined as, "the two-way or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device, or technology," (Shankar and Balasubramanian 2009, p. 118) is quickly becoming a mainstream activity. Industry analysts point to an increase in all categories of mobile marketing spending with eMarketer (2013) claiming a 10-fold overall increase between 2010 and 2015. It is estimated that 20% of Google's search revenue can now be attributed to mobile (Sterling 2015). Twitter has reported that 86% of its advertising revenue now comes from mobile (Sullivan 2015). U.S. mobile advertising expenditures are expected to grow from $29 billion (49% of

digital ad spending) in 2015 to $66 billion (72% of digital ad expenditures) by 2019 (eMarketer 2015a). Mobile coupons are thought to be used by more than 40% of US companies with more than 100 employees as of 2015 (eMarketer 2015b).

There is no reason to expect the above-cited growth in mobile marketing to slow down. In fact, we observe a further proliferation of mobile devices, particularly in the developed world. Devices now span form factors from basic feature phones to smart phones, through "phablets" to tablets. Wearables figure to add complexity to the mobile marketing mix as the smartwatch market alone is expected to reach $32.9 globally by 2020 (Kohli 2015). Emerging technologies such as beacons (Martin 2014) will likely shift marketing spending even further toward mobile if they prove effective.

Many businesses are therefore affected by the mobile marketing and mobile technology trends discussed above but perhaps none more than retailing (Shankar et al. 2010). Annual global mobile retail purchases are expected to surpass $700 billion and account for 30% of online purchases by 2018 (Juniper Research 2014). The portability of mobile devices

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means that the customer has a device with her near to and within the retailer's space. Traditionally, customers enter the retailer's space, but with mobile devices, retailers can invert the paradigm and enter the customer's personal environment. In fact, the location-centric services enabled by mobile platforms change the nature of the primary source of competitive advantage in retailing, namely location (Shankar et al. 2010).

In parallel with the growth of mobile marketing is a nascent but growing interest in gamification (Marchand and Hennig-Thurau 2013; Terlutter and Capella 2013). In this article, we focus on the use of gamification on mobile platforms to enhance marketing effectiveness in consumer markets. Consistent with the literature (Blohm and Leimeister 2013; Groh 2012; Huotari and Hamari 2012), we define gamification as the use of game design elements to enhance *non-game* goods and services by increasing customer value and encouraging value-creating behaviors such as increased consumption, greater loyalty, engagement, or product advocacy (Blohm and Leimeister 2013; Zichermann and Cunningham 2011). For example, users of My Starbucks Rewards earn gold stars for using the mobile app to pay and are granted status levels and benefits at different star levels. As another example, Daily Challenge from MeYou Health sends its users a challenge to engage in a healthy action every 24 hours. Users earn points for each challenge completed and are encouraged to share their success with their connections who, in turn, are encouraged to provide supportive posts. Note that the non-game use of game-like elements is not new (Blohm and Leimeister 2013). For example, many loyalty programs include points (e.g., miles) and status (e.g., platinum or gold). However, gamification may be distinguished from traditional loyalty programs by providing added social and motivational benefits through product usage rather than only expenditures (Blohm and Leimeister 2013; Huotari and Hamari 2012).

The ubiquity and other aspects of mobile technology make it particularly well suited to gamification, a strategy that has already become an important component of many mobile service offerings as firms seek to enhance consumer enjoyment, engagement, and retention. Millennials in particular are heavy users of both game technology and mobile phones (Zickuhr 2011). Mobile gamification is especially useful to reach consumers in phone-centric parts of the world.

Gamification executed on the mobile platform has the potential to affect an important set of retailing outcomes, to entertain customers, to accelerate repurchase, to retain customers, and to contribute to in-store engagement. In fact, its effect might be felt throughout the consumer decision process. Additional optimism might be justified from what we know about video games, which have been shown to enhance arousal (Poels et al. 2012); increase perceptions of self-efficacy, competence, relatedness, and autonomy (Przybylski, Rigby, and Ryan 2010; Ryan, Rigby, and Przybylski 2006); and facilitate social interactions that enhance learning and encourage teaching (Albuquerque and Nevskaya 2015).

Despite the promise, our own academic intuition, based on interactions with gamified interfaces offered by a wide variety of service firms and backed up by what game design practitioners are saying (Deterding 2012; Ferrara 2013), is that extant research on gamification and current implementations of gamification in mobile consumer settings fail to live up to its possibilities. Both the literature and practice tend to focus on points and awards, neglecting other game design elements that can be used to create a more game-like experience including challenges and narratives, social connections, and visual design (Conaway and Garay 2014). To this list, we can also add mystery, surprise, and discovery (Schell 2008). Many of these other elements are particularly suited for mobile platforms. For example, HelloLocal is used by shopping mall operators to engage consumers in treasure hunts in which beacon technology provides clues to complete a treasure map (Cameron 2015). One of the goals in this work is to more fully identify and organize different game design elements to expose the full theoretical and practical range of mobile gamification. A second goal is to carefully work through our organizational scheme and investigate each gamification element, offering appropriate theoretical background for how elements may be used, identifying their potential pitfalls, and identifying open research questions.

To achieve these goals, we draw on the ideas of Schell (2008), whose Elemental Game Tetrad Model provides a coherent and logical means of examining how designers can encourage positive marketing outcomes of gamification. We use this model as the basis for posing a series of research questions about the effect of gamification on mobile marketing effectiveness in consumer markets. Thus, we hope to help the field to develop a fundamental understanding of how gamification can enhance mobile marketing, including mobile advertising (Grewal et al. this issue), mobile promotion (Andrews et al. this issue), and mobile shopper marketing (Shankar et al. this issue).

We start by discussing the four tetrad elements and their effect on marketing outcomes. From there we will discuss product-side moderators of the effect of the tetrad elements on marketing outcomes, followed by consumer-side moderators of the tetrad–outcome relationship. Thus, our conceptual model and the flow of this paper correspond to Fig. 1.

Tetrad Gamification Elements

A widely acknowledged framework for designing games is the Elemental Tetrad Model proposed by Schell (2008). The model consists of four elemental design characteristics that interrelate and create a cognitive and affective ecosystem around the theme of a game — for example, competition, skill development, or enjoyment. We propose that these four elements are applicable to gamification. In Schell's view, all four elements must be carefully aligned to create player immersion and engagement. The first element, *story*, or the narrative format, provides context to a game and adds meaning to the consumption experience. *Mechanics*, the second element, refers to rules and structural aspects of games and is concerned with how success is recognized by reward, incentive structures, and game levels. Game mechanics enable players to know how to maneuver through the game and to form an impression of what is expected and rewarded at hierarchical game levels. The mechanics enable a game dynamic that in turn creates a specific
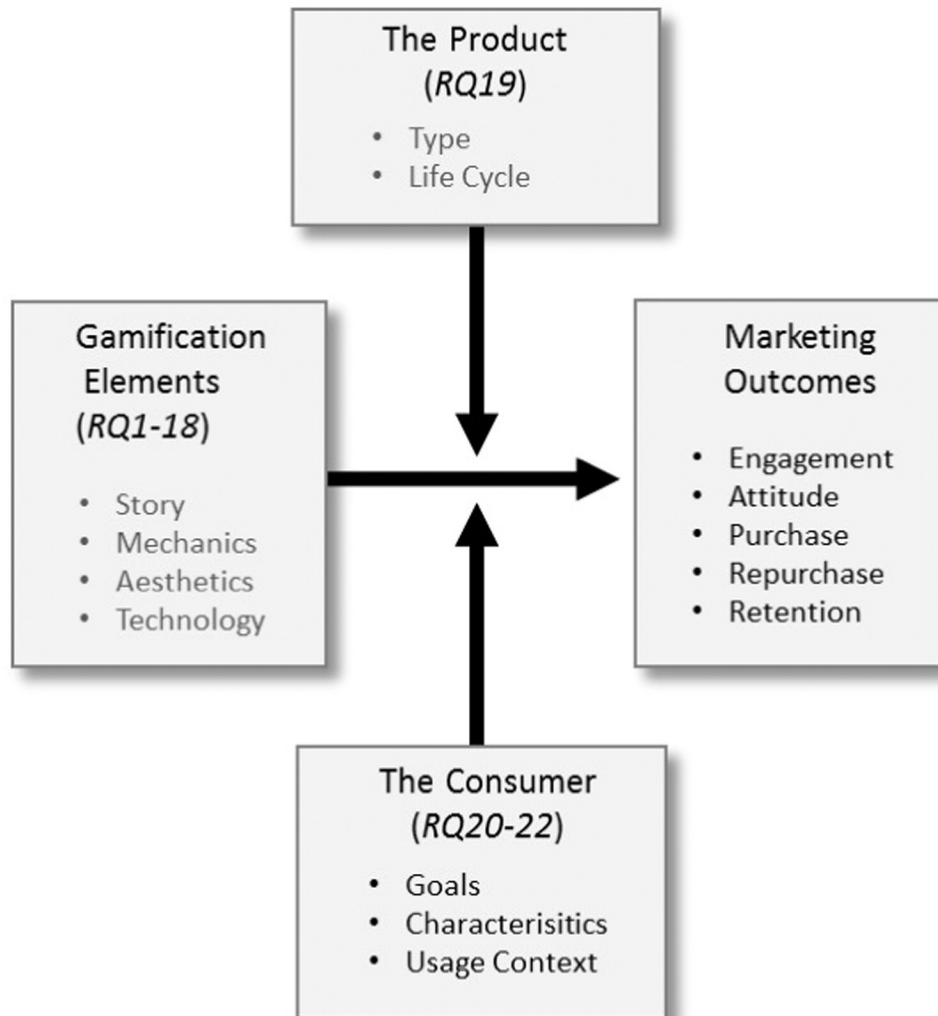
Fig. 1. Overview of the current approach.

user experience (Huotari and Hamari 2012). Third, *aesthetics*, or the look and feel of a game, instill games with a sense of purpose and strengthen the development of the storyline. For many games, a focus on visual imagery and presentation is important to creating an immersive experience, although other senses may come into play. Finally, *technology* pertains to how the medium, in our case the mobile platform, shapes the game experience. For instance, the fact that a mobile device is in effect a networked computer creates opportunities for interactivity and dynamic game play.

The tetrad framework provides an integrated approach to gamification by linking the various elements of game-like experiences. For instance, an experience falling short of player expectations may be attributed to aesthetics that are not optimally aligned with the story, technology that does not adequately support feedback, or incentive structures (mechanics) that fail to engage players. In the following, we work through each element of the tetrad and propose moderating relationships between tetrad elements and product and consumer factors.

Design Element 1: Story

Most companies recognize the importance of storytelling as a persuasion strategy but have limited understanding of how the story element in (mobile) games can be effectively used for marketing purposes. Research on narrative transportation (e.g., van Laer et al. 2014) provides important insights into the importance of the story. Narrative transportation refers to "a convergent process, in which all of the person's mental systems and capabilities become focused on the events occurring in the narrative" (Green and Brock 2000, p. 701). Van Laer et al. (2014) argue that this process consists of three steps. First, it is important that the receiver focuses attention on the development of the story and analyzes it. Subsequently, narrative transportation is achieved through two components: mental imagery and empathy. Whereas mental imagery signifies that a story receiver imagines that she is part of the story, empathy reflects the receiver's attempt to understand and relate to the story character. Taken together, these two components create the "suspension of disbelief" that transports one into the story

of the game. In effect, narrative transportation results when the player is psychologically "lost" in that story. Stories provide relevance and meaning to the player experience, provide context for the application of tasks, and guide action. Building a narrative means answering questions such as the following: What is the setting? Who is the hero? What can the hero achieve?

Approaching mobile gamification from the perspective of storytelling holds the promise of enhanced persuasion. When transported, players tend to be less aware of their own beliefs, attitudes, and intentions as they become engrossed in how the story in the game unfolds. This phenomenon is in contrast to analytical or fact-based persuasion, in which people are inclined to draw on prior beliefs (Petty, Cacioppo, and Schumann 1983). Consequently, narrative transportation "may lead to at least temporary acceptance of values and beliefs that represent a shift from the individual's existing beliefs" (Slater and Rouner 2002, p. 177), suggesting that the right story element can make game-associated advertising more effective.

Most commonly, advertising and in-app purchasing are used to convert players into payers and generate external revenues. Unfortunately, the business case may devalue the game because in-game advertising and selling disrupt the narrative experience and are often viewed as intrusive by players. A greater focus on maintaining narrative flow such that the game-like experience is not threatened may enhance mobile marketing effectiveness.

An important question is whether marketing activities should be congruent or incongruent with mobile gamification narratives. The theoretical and empirical evidence is equivocal. Ads in mobile games are generally considered intrusive because they draw attention away from the purposeful act of gaming (Li, Edwards, and Lee 2002; Truong and Simmons 2010). Conversely, intrusiveness may make an ad stand out and thus be more effective. These alternative expectations are based on two rival effects: (1) priming and (2) interference. Whereas the former is based on the idea that playing a mobile game or gamified app activates a scheme that makes processing of a congruent ad easier (De Pelsmacker, Geuens, and Anckaert 2002), the latter is derived from the assumption that thematic blending of game and ad will diminish ad recall (Furnham, Gunter, and Richardson 2002). Similar competing predictions involve congruence between game and marketing goals. For example, if mobile game advertising is not goal related, players would seem less likely to click and may not interact with the ad beyond involuntary exposure. In other words, there will be an interference effect. Alternatively, low levels of attention to the ad may lead to pre-attentive processing and a more favorable advertising attitude (Shapiro, MacInnis, and Heckler 1997). Thus, we posit the following research question:

RQ1: How does thematic congruence affect the marketing effectiveness of mobile gamification?

An equally important issue is whether narrative transportation is the process that can potentially explain why congruence between the game story and marketing enhances or diminishes marketing effectiveness. When processing narratives, people construct mental models specific to the events that occur in the story in which they are engaged. An interruption of this process is likely to affect narrative transportation negatively (Zwarun and Hall 2012). It has been argued that processing ad information diminishes the ability to process the story line and, therefore, decreases the likelihood of narrative transportation (Wang and Calder 2009). It could also be argued that congruent advertising, which is less disruptive, may therefore have a positive effect on narrative transportation in mobile gaming. A possible alternative explanation, however, is that a thematically congruent ad message in mobile gamification leads to lower levels of narrative transportation. For instance, Mandler (1982) suggests that information congruent to the media context has a higher chance of being processed, taking processing capacity away from the actual narrative and thus reducing transportation. Finally, if the level of immersion is high (i.e., narrative transportation is large and significant), the player may have fewer psychological and attentional resources available to process advertising information due to depletion (Vohs and Heatherton 2000).

Additionally, the influence of narrative transportation on advertising outcomes, such as recall and attitude toward the ad, could be explained by considering the fact that unconscious persuasion occurs when people are transported with effects beyond the narrative of the game (Green and Brock 2000). Non-disruptive, or thematically congruent, advertising will likely have a positive (or less negative) effect vis-à-vis disruptive advertising (c.f., Wang and Calder 2009). The positive experience associated with narrative transportation may be transferred to advertising evaluations (Green and Brock 2000), although there are indications that this effect, in turn, is attenuated when advertising is not goal-relevant (Durkin and Wakefield 2008). In addition, narrative transportation could mediate the relationship between thematic compatibility and ad evaluations. This relationship is likely to be driven by congruence (Oppenheimer and Olivola 2010) between the narrative and the product (e.g., a game that is a quest and a product that is congruent with journeys) or between the narrative and the consumer (e.g., an early adopter may be more willing to submit to immersive experiences than may a late adopter).[1] Congruence and fit could also affect perceived fluency and thus preference formation (Novemsky et al. 2007). We therefore formulate the following research question:

RQ2: What is the mediating role of narrative transportation between thematic congruence and the marketing effectiveness of mobile gamification?

The way in which congruence functions may depend on regulatory fit (RF). Research could thus explore how game engagement might be stimulated when there is a match between the consumer's goal orientation and the goal being pursed in the gamified app (e.g., Higgins 2006). The key idea behind

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[1] An example is use of virtual reality headsets (e.g., the Oculus Rift) in gaming. The immersive 3D experience of such headsets is not completely free of side effects, the most common being nausea (others being blurry vision and a feeling of being overwhelmed while gaming). However, for narratives in which 3D immersion is required, early adopters are willing to address the side effects (Rubin 2014).

Regulatory Fit Theory is that each individual has a different motivational orientation, or regulatory focus, that varies from a promotion focus (motivated by achieving gains) to a prevention focus (motivated by avoiding losses; e.g., van Noort, Kerkhof, and Fennis 2008). RF theory posits that fit affects perceptions of the value of an experience through both the sense of "feeling right" and level of engagement (Lee, Keller, and Sternthal 2010). High RF has the potential to intensify the experience of thematic compatibility such that positive reactions become more positive, whereas negative reactions become more negative (Avnet and Higgins 2006). RF increases the motivation to process information, attention to messages, and willingness to spend time playing (i.e., engagement induces processing fluency; Lee, Keller, and Sternthal 2010). Through the experience of fit, consumers should feel better when using the mobile gamified app. In terms of the underlying mechanism, we argue that the "feels right" experience and sense of enjoyment may lead to an increase in the marketing effectiveness of mobile gamification. However, how RF influences players could vary between verbal and nonverbal formats. Verbal routes of regulatory fit are based on ad claims or product information. Nonverbal RF routes are processed through visuals and observed movements or, in general, the look and feel of an ad (Mourali and Pons 2009). Because nonverbal stimuli are more compatible with mobile gaming platforms, we posit that visual marketing-related stimuli are more effective in the context of mobile gamification.

> *RQ3*: What is the mediating role of nonverbally induced regulatory fit between thematic congruence and the marketing effectiveness of mobile gamification?

The type of story played out in a game is conditional on its genre. Genres include action, fighter, puzzle, and racer games (see Marchand and Hennig-Thurau 2013 for a more inclusive list). Recent advances in mobile technology have led to the development of new game genres, which are likely to differ in terms of impact and effectiveness when used in mobile marketing contexts. For example, new technologies offer the possibility to integrate the monitoring of physical activity and heart rate into apps focused on health improvement. Some of these technologies are actual games, such as Fit Brains, which is designed to stimulate cognitive abilities and mental effort sustenance. Others use gamification elements to assist consumers in making healthy food choices, developing math skills, and increasing reading speed. Because genre may affect aspects such as consumer involvement and motivation, when evaluating the marketing potential of mobile gamification, focusing on differences across genres is important:

> *RQ4*: How does genre affect the marketing effectiveness of mobile gamification?

Design Element 2: Mechanics

Game mechanics refers to the game's procedures and rules, how players achieve goals, and how players are rewarded. The mechanics of a game provide the feedback that makes game outcomes comprehensible. Common game mechanics include badges, points, progress bars, and leaderboards. However, it has been argued that these mechanics ultimately refer to "forms of feedback within the game," whereas the real power of games is generated by forcing users to make meaningful choices in the pursuit of difficult goals (Deterding 2012). Salen and Zimmerman (2004) argue that a core element of effective game design is to create an experience that is meaningful through a clear connection between player actions and game outcomes. Reward systems help motivate players, create loyalty, and signal social status.

Numerous design choices appear under the topic of mechanics, including publicly versus privately viewable incentives; categorical, continuous, symbolic, or monetary incentives; and the role of goal achievement and progression. For instance, recent research (Shen, Fishbach, and Hsee 2015) has demonstrated that rewards of uncertain magnitudes tend to motivate people more than do rewards with known magnitudes, even when the expected value of the uncertain incentive is lower. This motivating effect of uncertainty occurs when people concentrate on the process of obtaining the reward instead of the outcome of the reward. Given the competitive nature of games and the inherent enjoyment in playing games, it would be interesting to assess whether reward uncertainty is an important motivator when using mobile gamification to achieve marketing goals.

It would also be of interest to assess whether the so-called goal gradient hypothesis (Kivetz, Urminsky, and Zheng 2006) applies in the context of mobile gamification. The premise is that people tend to increase effort as they approach rewards (Kivetz, Urminsky, and Zheng 2006) or approach visual finish lines (Cheema and Bagchi 2011). Similarly, it is of interest to assess whether helping consumers get started via initial bonus credits, for instance, increases the likelihood of reaching a higher level of app use or loyalty. Alternatively, sensory experience could be intensified as consumers approach their next loyalty level. In fact, in the popular Peggle game, increasing sound intensity is used to encourage goal attainment.

Research on meritocratic governance systems demonstrates the ways in which ranking systems form the basis for providing selective incentives (Olson 1965; Willer 2009). In the gamification context, this phenomenon is referred to as "badging." Badging describes the contingencies under which visual identifiers are provided to reflect the merits of a player's accumulated achievements and within-game social position, as seen in World of Warcraft and other games. This accumulation of symbolic capital (i.e., points or other symbols associated with status) can occasionally become dysfunctional from a marketer's point of view. Such symbolic capital must be integrated with real world currencies and with marketing goals related to the firm's goods and services. Integration must be done with care because it may "break the spell" of a closed gaming world, occasionally referred to as the game's magic circle (Lin and Sun 2007). For mobile gamification, it is unclear how symbolic capital should be converted into real capital (such as discounts on products or services) to maximize engagement while avoiding player frustration and exit:

> *RQ5*: How does reward structure affect the marketing effectiveness of mobile gamification?

The notion of rewards leads to the topic of motivation and its categories. The use of incentives, such as financial rewards, is commonly based on the need to drive extrinsic motivation (i.e., the accumulation of material gains). However, it has been widely demonstrated that, over time, the effect of incentives decreases and even undermines intrinsic motivation. Blohm and Leimeister (2013) argue that this effect may not occur with game-specific symbolic rewards (e.g., points or badges) because their collection provides visual evidence of one's performance, helps to document progress toward personal goals, facilitates social interaction in a community of peers and in the competitive environment, and functions as an instrument of social recognition within games. Thus, incentives such as points and badges serve as both intrinsic and extrinsic motivators. However, other research suggests that rewards must be continually offered to maintain interest; taking these rewards away leads to consumer abandonment (Nevskaya and Albuquerque 2015). In other words, for many consumers, these extrinsic incentives are never fully internalized.

RQ6: How does the mix of intrinsic and extrinsic rewards affect the marketing effectiveness of mobile gamification?

Flow has been widely used to understand interactive media consumption (see Hoffman and Novak 2009 for a review). Flow is defined as an optimal psychological experience that comes with the correct balance between a challenge and the skills available to address that challenge (Csikszentmihalyi 2014). The importance of *balance* means that picking difficulty levels will be an important issue for the programming of rewards in gamification design. Getting the reward–difficulty relationship right could lead to positive gamification outcomes since flow benefits brand attitudes, purchase intention, unplanned purchases, and online purchases in general (Hoffman and Novak 2009), in both exploratory and goal-directed activities (Novak, Hoffman, and Duhachek 2003).

Despite the fact that ease of use is a critical antecedent to adopting mobile services (Gao et al. 2013), flow theory suggests that providing a reward at too low a level of difficulty leads to boredom (Csikszentmihalyi 2014). On the other hand, increased difficulty can lead to game abandonment (Albuquerque and Nevskaya 2015). So gamification designers have to seek out a "sweet spot" of difficulty at which a reward is given. Other research suggests that gamification features that rely on tacit knowledge, such as navigation, are better learned through concentrated practice, whereas explicit knowledge, such as written instructions, is better acquired by spaced learning sessions. This distinction between *types of skill* further complicates reward programming in gamification design.

Consumption, satisfaction, and loyalty depend upon consumer proficiency and the strength of practice effects (Johnson, Bellman, and Lohse 2003; Lakshmanan, Lindsey, and Krishnan 2010). Further, interface mastery is required to meet the psychological needs of competence, autonomy, and relatedness (Przybylski, Scott Rigby, and Ryan 2010). Clearly marketers contemplating gamification will need to carefully analyze reward levels with an eye to how, when, and whether consumers will develop proficiencies of various types.

RQ7: How does the relationship between difficulty and reward affect the marketing effectiveness of mobile gamification?

In addition to the economic value of reward structures, mobile gamification offers the opportunity to generate at least two types of non-monetary value propositions for consumers. First, mobile gamification can create epistemic value through the cognitive benefits of skill development, information acquisition, and learning (Nambisan and Baron 2009) that expands players' knowledge and expertise. Second, mobile gamification can create social value through interactions involving appreciation, compliments, and reciprocal exchange with others (Nambisan and Baron 2009). Mobile gamification mechanics that encourage social interaction may create an atmosphere of camaraderie, build social bonds, and facilitate future interactions (with both the brand and other consumers).

RQ8: How do mobile gamification mechanics that foster epistemic versus social value affect the marketing effectiveness of mobile gamification?

In addition to determining reward levels, degree of challenge, knowledge and social exchange mechanics, mobile gamification involves choices about the consumer's visual perspective. In some games, game action is seen through the eyes of a participant. In others, the perspective is that of an observer. A participant with a first-person perspective (e.g., in a driving game) is likely to behave more viscerally and act on limited data (his/her perspective), whereas a participant with an observer's perspective is likely to engage in more-detached and deliberative actions. The marketing effectiveness of such gamification mechanics is unknown. We therefore ask,

RQ9. How does visual perspective affect the marketing effectiveness of mobile gamification?

Design Element 3: Aesthetics

Appearance matters in creating an engaging experience. A case in point is the Bad Piggies game, which features one of Angry Birds' supporting characters in its own game. This successful game is often mentioned as an example of effective aesthetics. Pigs feature consistently in the logo, the icon, and the game. Pig noses are used to dot the i's throughout to emphasize that Bad Piggies is a character-centric game. Because the bad piggies are green, this color is heavily emphasized, and different hues of the base color are used to create the illusion of depth even on small mobile screens. The main characters fly airplanes, which have to be created, and the eyes of the pigs track finger movements as airplanes are being built. The bad piggies show detailed facial expressions of joy (e.g., as they tumble down slopes). All of these aesthetic features and character quirks are characteristic of the game gestalt, or creative vision, that enhances engagement, perhaps

through narrative transportation. Creative vision should affect the effectiveness of mobile gamification. Future research can examine this idea by asking,

> *RQ10*: How does creative vision affect the marketing effectiveness of mobile gamification?

Visual semiotics is another aspect of game aesthetics that focuses on how various elements in visual representations signal meaning (Rose 1978). An essential semiotic distinction is made between conceptual and narrative representations. Pictorial representations of products in games (e.g., the TNT brand on a Bad Piggie airplane) are conceptual because they are stable and represent a generalized brand signal (Kress and van Leeuwen 2006). In contrast, narrative representations depict transitory processes of visual elements denoting behavior (e.g., a game character drinking a branded soft drink). An avenue for further research would be whether mobile gamification that uses narrative is more or less effective than a pictorial representation (see also Paivio's (1971) dual-process theory).

> *RQ11*: How do conceptual versus narrative visual representations affect the marketing effectiveness of mobile gamification?

Finally, given the increased popularity of user-generated images and social network sites such as Pinterest and Instagram, an important research question is whether snapshot aesthetics are more effective than other design aesthetic choices. Snapshot refers to a style generally perceived as more 'real' and 'authentic' and characterized by off lighting, blurred focus, harsh contrast and shaky movements (Schroeder 2012). This style of aesthetics provides products a more dynamic and contemporary look. For example, a pertinent research direction would be to examine whether snapshot-like design elements contribute to brand authenticity.

> *RQ12*: What is the effect of snapshot (vs. other) aesthetic formats on the marketing effectiveness of mobile gamification?

Design Element 4: Technology

Technology is the medium through which the story is told, the mechanics operate, and the aesthetics are presented. For one thing, app designers will increasingly assume broadband access. For another, unlike console gamers, mobile consumers are looking for games to provide transient benefits (e.g., relieving boredom while waiting in line) rather fully immersive gaming experiences. Mobile gamification must consider consumers' limited cognitive resources by developing game-like experiences with low barriers to entry. Low barriers to entry and rapid technological changes will likely lead to a succession of new games replacing current games in popularity at a rapid pace. Thus, mobile gamified apps will resemble a continuous service rather than a single, fixed good.

Changes in mobile platforms will raise opportunities and challenges for gamification. For instance, with larger devices such as the iPhone 6 and 6+, Samsung's Galaxy, and tablets,

players are able to immerse themselves in a more engaging experience. There is anecdotal evidence that screen size (and computing power) matters; industry studies reveal that tablet owners download and play more extensively than do mobile phone owners (Mintel 2013). Mobile devices are used in a variety of physical and social environments; the environment and the form factor of the device itself change how players hold it (i.e., landscape vs. portrait). The physical actions of tapping, scrolling, swiping, pinching, and typing likely depend upon their technological context. Thus, subtle differences in mobile platforms may have important implications for using mobile gamification as a marketing vehicle.

> *RQ13*: How does the mobile platform affect the marketing effectiveness of mobile gamification?

Mobile devices are becoming more personal and more intimate because the market for wearable devices or "wearables" is set to explode (Stern 2015). The growth in wearables will primarily be driven by smartwatches and fitness trackers, hardware that does not have any roots in gaming. Consumer interest in wearables is driven by the ease of tracking personal data in domains such as fitness, health, and the "quantified self." The vast majority of apps that leverage such personal data use gamification principles (e.g., visual cues and threshold targets) to increase engagement and usage. App developers must cope with both the vast amount of new data available to customers and the potential ability of apps to leverage these data. Marketers will also have to consider two possible strategies, one for software, and one for hardware. For software, we envision synergistic games that incorporate personal data into the gamification environment in a seamless manner (e.g., using data from a heart rate monitor in a first-person shooter game). The second strategy would be to develop wearable hardware that enhances game-like experiences (e.g., virtual reality equipment that can also be used to consume entertainment).

> *RQ14*: How do wearables affect the marketing effectiveness of mobile gamification?

The notion of narrative transportation was originally developed for oral and verbatim storytelling contexts. Narrative transportation has recently been extended to the study of games based on the premise that these formats are characterized by a higher degree of media richness (Biocca 2002), which leads to greater narrative immersion. For instance, Polichak and Gerrig (2002) suggest that the use of audio-visual elements in games generates a richer participatory response by engaging the sense of hearing, implying that mobile platform characteristics are likely to moderate the effects of the story on narrative immersion and, therefore, the effectiveness of mobile gamification.

> *RQ15*: How does the mobile platform moderate the effect of story on the marketing effectiveness of mobile gamification?

A typical console game has a relatively low entry barrier for new players, but the difficulty of the game grows in a non-linear

fashion as the player becomes more and more proficient at the game. However, with mobile gamification, the relative lack of involvement and need-gratification objectives make this non-linearity unappealing. Thus, relative to console games, gamified mobile apps are likely to have a more-linear reward-to-effort structure. We therefore ask,

> *RQ16*: How does the mobile platform moderate the effect of gamification mechanics on the marketing effectiveness of mobile gamification?

The smaller form factors of mobile relative to console or computer games make embedding rich graphics into apps difficult. However, text-heavy games also pose similar challenges. Thus, we would posit that mobile gamification would be enhanced through bright block graphics, simple layouts, and minimal text to draw attention and engagement within the small form factor. This type of thinking leads to the general question,

> *RQ17*. How does the mobile platform moderate the effect of gamification aesthetics on the marketing effectiveness of mobile gamification?

Playing a game necessitates the adoption of a role. These roles can be that of an individual or a person within a team. Team gaming, in which teams are chosen by either the players or the software, typically relies on participants taking different roles to complement one another in their quest to achieve a common objective. For example, in games such as Battlefield 4, team members play roles such as shooters/snipers, prospectors, and pilots to succeed at a specific mission. Mobile gamification will be challenged by small screens on mobile devices and more so when social presence must be represented. We might suppose then that mobile gamification will be more focused on individuals relative to group identities. In general, we ask,

> *RQ18*: How does the mobile platform moderate the effect of identity expression on the marketing effectiveness of mobile gamification?

Product-related Moderators

The effect of mobile gamification elements on marketing effectiveness should vary by product type. For example, a narrative focused on consumer actions may be more appealing for utilitarian products, whereas a narrative around reactions to product experiences may be more effective for hedonic products (Moore 2015). The effect of mechanics, such as the use of real names or publicizing rewards, should depend on the extent to which products are used to signal identity (Berger and Heath 2007). Aesthetics should be more important for hedonic than utilitarian products, although both types of products should benefit from enhanced aesthetics (Alba and Williams 2013). The importance of particular technology features, such as virtual reality, should also be more important for products that are highly experiential (Suh and Lee 2005). Just as marketing goals vary

along the produce life cycle, the optimal type of narrative must vary as products move from introduction to maturity (Day 1981).

> *RQ19:* How do product type and lifecycle moderate the effect of story, mechanics, aesthetics, and technology on marketing effectiveness?

Consumer-related Moderators

The extent to which gamification enhances mobile marketing should depend on consumer goals. For example, gamification can be used to meet enjoyment and entertainment goals, but because gamification may lower ease of use, it may interfere with utilitarian and instrumental goals (Nysveen, Pedersen, and Thorbjørnsen 2005). More specifically, a rich story may be helpful when a consumer has a learning goal (because narrative transportation is associated with greater self-referencing, and therefore with greater learning; Escalas 2007). Similarly, the effect of game mechanics may depend on consumer proximity to particular goals and the mechanics of goal achievement (Kivetz, Urminsky, and Zheng 2006; Zhang and Huang 2010). For example, as mentioned earlier, badges and other rewards often become more salient as one approaches a particular reward level (Cheema and Bagchi 2011; Kivetz, Urminsky, and Zheng 2006). In addition, the effectiveness of mechanics that encourage social interactions versus learning should depend on whether consumer goals match these mechanics. Finally, the effect of the technological capabilities of gamified environments should depend on consumer needs for large amounts of (rich) information versus simple interfaces to make easy and quick decisions.

> *RQ20*: What is the moderating effect of consumer goals on the effect of story, mechanics, aesthetics, and technology on the marketing effectiveness of mobile gamification?

Consumer traits should also moderate how gamification design affects marketing effectiveness. For example, research on online gaming shows that, although the majority of consumers, who are extrinsically motivated, increase participation in response to rewards such as virtual goods, a minority, with stronger use habits and stronger intrinsic motivation, are unaffected by reward offers (Nevskaya and Albuquerque 2015). Other research shows that the importance of different game features is different for older versus younger consumers (Park and Lee 2011). Still other research suggests that the attractiveness of gamification features will depend on consumers' existing game use, whether this use is habitual or occurs across different contexts, and consumers' addictive tendency to play games (Hartmann, Jung, and Vorderer 2012).

In terms of specific gamification elements, the effectiveness of particular narratives in achieving transportation and enhancing persuasion is likely to depend on regulatory fit (Aaker and Lee 2001; Higgins 2006). For example, gamification that tells a story about individual achievement is more likely to appeal to individuals with a promotion focus, whereas a narrative around social connections is more likely to appeal to those individuals with a prevention focus (Aaker and Lee 2001). The effectiveness

of mechanics, such as reward structures and goals, should also depend upon individual differences in risk aversion and reward seeking (Hamari, Huotari, and Tolvanen 2014; Nevskaya and Albuquerque 2015). The role of aesthetics in enhancing gamification effectiveness should depend upon the extent to which consumers have a strong connection to aesthetic dimensions of marketing offerings (Bloch, Brunel, and Arnold 2003). Furthermore, the effectiveness of playful aesthetics should depend upon fit with consumer mood (Puccinelli 2006). The effects of technology design to enhance gamification should depend on individual consumer experience, age, and gender (Venkatesh, Thong, and Xu 2012).

RQ21: How do consumer characteristics moderate the effect of story, mechanics, aesthetics, and technology on the marketing effectiveness of mobile gamification?

A related theme is how the context in which consumers employ their devices changes their interactions or usage patterns and the effect of gamification design elements. Unlike computers, mobile devices are used while standing, walking, on public transport, and so on. Moreover, players hold devices in very different ways (i.e., landscape vs. portrait), and tapping, scrolling, and typing behaviors may differentially affect behavioral response to gamification. These subtle game experience antecedents may have important implications for using mobile gamification as a marketing vehicle.

For example, a rich story may be counterproductive when using a mobile in a car. However, to the extent that the consumer's physical location can be integrated into the narrative, this use may increase narrative immersion and enhance the consumer experience. Similarly, the effectiveness of mechanics such as loyalty points for visiting a retail outlet should depend on the consumer's physical distance from the outlet. The effect of technological capabilities, such as the ability to continue interactions across multiple hardware platforms, might depend on the extent to which the consumer uses multiple devices for a shopping session.

RQ22: How do usage context characteristics moderate the effect of story, mechanics, aesthetics, and technology on the marketing effectiveness of mobile gamification?

Table 1
Gamification elements, product and consumer moderators, and research questions.

Aspect	Type of effect	Research question
Game story	Main	*RQ1*: How does thematic congruence affect the marketing effectiveness of mobile gamification?
	Mediated	*RQ2*: What is the mediating role of narrative transportation between thematic congruence and the marketing effectiveness of mobile gamification?
	Mediated	*RQ3*: What is the mediating role of nonverbally induced regulatory fit between thematic congruence and the marketing effectiveness of mobile gamification?
	Main	*RQ4*: How does genre affect the marketing effectiveness of mobile gamification?
Game mechanics	Main	*RQ5*: How does reward structure affect the marketing effectiveness of mobile gamification?
	Main	*RQ6*: How does the mix of intrinsic and extrinsic rewards affect the marketing effectiveness of mobile gamification?
	Main	*RQ7*: How does the relationship between difficulty and reward affect the marketing effectiveness of mobile gamification?
	Main	*RQ8*: How do mobile gamification mechanics that foster epistemic versus social value affect the marketing effectiveness of mobile gamification?
	Main	*RQ9.* How does visual perspective affect the marketing effectiveness of mobile gamification?
Game aesthetics	Main	*RQ10*: How does creative vision affect the marketing effectiveness of mobile gamification?
	Main	*RQ11*: How do conceptual versus narrative visual representations affect the marketing effectiveness of mobile gamification?
	Main	*RQ12*: What is the effect of snapshot (vs. other) aesthetic formats on the marketing effectiveness of mobile gamification?
Game technology	Main	*RQ13*: How does the mobile platform affect the marketing effectiveness of mobile gamification?
	Main	*RQ14*: How do wearables affect the marketing effectiveness of mobile gamification?
	Moderating	*RQ15*: How does the mobile platform moderate the effect of story on the marketing effectiveness of mobile gamification?
	Moderating	*RQ16*: How does the mobile platform moderate the effect of gamification mechanics on the marketing effectiveness of mobile gamification?
	Moderating	*RQ17.* How does the mobile platform moderate the effect of gamification aesthetics on the marketing effectiveness of mobile gamification?
	Moderating	*RQ18*: How does the mobile platform moderate the effect of identity expression on the marketing effectiveness of mobile gamification?
Product and lifecycle	Moderating	*RQ19:* How do product type and lifecycle moderate the effect of story, mechanics, aesthetics, and technology on marketing effectiveness?
Consumer goals, characteristics, and usage context	Moderating	*RQ20*: What is the moderating effect of consumer goals on the effect of story, mechanics, aesthetics, and technology on the marketing effectiveness of mobile gamification?
	Moderating	*RQ21*: How do consumer characteristics moderate the effect of story, mechanics, aesthetics, and technology on the marketing effectiveness of mobile gamification?
	Moderating	*RQ22*: How do usage context characteristics moderate the effect of story, mechanics, aesthetics, and technology on the marketing effectiveness of mobile gamification?

Conclusions

We began this work operating under the assumption that game design principles had not been thoroughly leveraged in practitioner gamification design. Gamification is claimed to enhance loyalty, customer engagement, and motivation (Blohm and Leimeister 2013; Zichermann and Cunningham 2011). However, there is limited empirical evidence of these effects (Hamari, Koivisto, and Sarsa 2014). Rather than pick gamification elements in a vacuum, we believe that a better way forward would be for researchers to utilize the fundamental elements of game design — the Schell (2008) tetrad of story, mechanics, aesthetics, and technology. We note that these gamification elements have been poorly investigated by marketing academics, if at all, in either a general or a mobile gamification setting. We are of the opinion that gamification is not a fad. Because gamification is likely to affect the customer experience, marketers should play an important role in gamification decisions. We hope to have contributed to this understanding at its onset.

Researchers might utilize a variety of data collection approaches to explore answers to our research questions (Table 1). Long-duration data collection from customers or research panel members using experiments to manipulate story, aesthetics, mechanics, or technology across groups would seem an ideal approach. We expect many firms to engage in A/B testing of mobile gamification apps. Another approach for academics would be to collect company data to compare marketing results across companies that use different approaches to gamification.

Game activity throws off a great deal of data at the individual level (Jolley, Mizerski, and Olaru 2006), and the task of modeling such data is nontrivial. Additional questions arise when addressing team games and the appropriate level of analysis. In addition to the substantive research questions we have posed, many methodological questions and payoffs exist in this area.

In summary, an increasing part of the real economy is being supplemented with additional symbolic economies — miles, points, and the various tokens of a gamified world. This trend is largely playing out on mobile devices. We believe that marketers can help themselves in such a world through well-thought-out gamification tactics.

Acknowledgments

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