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# Understanding how gamification influences behaviour in social marketing

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## ABSTRACT

**Purpose:** In Australia and many other nations the prevalence of overweight and obesity is increasing, while physical activity declines. This paper investigates the effect of gamification on consumers' motivation and behaviour to engage in physical activity over time from a social marketing perspective.

**Design/methodology/approach:** An experimental design was used to determine the effect of a popular gamified fitness application (app) on both intrinsic motivation and walking behaviour over four weeks.

**Findings:** While the study found that gamification supported behaviour change and maintenance, there was no significant change to intrinsic motivation as a result of using the app. This finding suggests there may be an alternative mechanism underlying how gamification achieves behavioural outcomes.

**Research limitations/implications:** Future research is recommended to further explore the manner in which gamification influences behaviours.

**Originality/value:** This paper addresses the call for longitudinal studies of gamification and for studies examining both the motivational and behavioural outcomes of gamification.

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## 1. Introduction

Social marketing is called upon to “sell” much behaviour that is inherently disagreeable to consumers. Behaviours targeted by social marketing are more difficult to perform and frequently have less obvious benefits that also take longer to accumulate than competing behaviours (Dibb and Carrigan, 2013; Hastings, 2003). Exercising, for example, can be challenging and may not deliver immediate health or other benefits, which negatively impact consumers' motivation to perform the behaviour (Binney et al., 2003; Rothschild, 1999). Gamification is defined as “a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation” (Huotari and Hamari, 2012, p. 19), accomplished through the use of game design elements, such as scoring systems, in non-gaming contexts (Deterring et al., 2011). Social marketers have employed gamification as a means to increase consumers' motivation to engage in pro-social behaviour through value exchange. This study thus investigates the effect of gamification on consumers' motivation and behaviour from a social marketing perspective.

It is proposed that gamification enables social marketers to draw on consumers' intrinsic motivation to play games (Ryan et al., 2006) in order to foster intrinsic motivation in non-game behaviour such as exercise (Flatla et al., 2011). Intrinsic motivation, or motivation

derived from the intrinsic benefits of the task itself, such as enjoyment or interest (Reeve, 1989), has been found to significantly predict the maintenance of behaviour change comparative to extrinsic motivation, derived from externally-derived rewards or punishments, which can even diminish behavioural maintenance (Bénabou and Tirole, 2006; Binney et al., 2006; Deci et al., 1999; Grant, 2008). However, the ease with which external rewards can be applied (Lynagh et al., 2013) together with their capacity to create short-term behavioural change (Bénabou and Tirole, 2006) has resulted in a proliferation of pay-for-performance and similar extrinsic approaches (Volpp et al., 2009). A greater focus on creating and supporting low-cost increases to consumers' intrinsic motivation to engage in behaviours targeted by social marketing is thus necessary and called for in the literature (Binney et al., 2003, 2006; Grant, 2008; Hagger et al., 2014).

There is considerable theoretical and conceptual support for the premise that gamification can serve as an ideal tool for social marketers seeking to support intrinsic motivation in their interventions (see Francisco-Aparicio et al., 2013 and Flatla et al., 2011 for examples). However, recent studies investigating the impact of gamification on motivation have failed to show increases in intrinsic motivation (Lewis et al., 2016; Mekler et al., 2015) despite the practice's demonstrated impact on behaviour across a variety of contexts (see Hamari et al., 2014). Mekler et al. (2015) suggest game elements commonly employed in gamification, such as points, leaderboards and badges, may act as contributors to extrinsic, rather than intrinsic motivation. While this would explain the lack of impact on intrinsic motivation, research on digital games shows these

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elements can foster intrinsic motivation (Cruz et al., 2015; Ryan et al., 2006). This contradiction of findings between gamification and entertainment focused game research may stem from gamification studies' focus on interventions that utilise individual game elements (e.g., leaderboards), and may fail to realise the intrinsically motivating benefits of a mechanically rich product that integrates a variety of gameplay mechanisms, as in the case of digital games (Deterding, 2011; Przybylski et al., 2010). Notably, past studies of gamification that have investigated behavioural outcomes of mechanically rich interventions have not examined behavioural determinates such as motivation (see Hamari et al., 2014; Seaborn and Fels, 2015).

Accordingly, this research seeks to address this contradiction and understand the impact of gamification, using multiple game elements, on both motivational and behavioural outcomes. It addresses the current gap in the literature and the call by Deterding (2014) for gamification research to move beyond a focus on the application of specific game elements towards examining the holistic motivational experience of the user. The research employs an experimental design to test the effect of a popular mechanically rich commercial exercise gamification product on motivational and behavioural outcomes over a four-week period. Better understanding of the theoretical underpinnings of gamification has significant implications for social marketing given the call for greater use of theory in program design (Buyucek et al., 2016). This investigation into the potential of gamification to augment consumers' intrinsic motivation also addresses calls for research into intrinsic motivation in the social marketing literature (Binney et al., 2003, 2006; Grant, 2008; Hagger et al., 2014). In particular, it will improve understanding of the mechanism of gamification's effect on behaviour in a physical activity context – a priority for social marketing in Australia and many other nations where the prevalence of overweight and obesity has been growing progressively, while physical activity has declined (Bassett et al., 2008).

## 2. Literature review

### 2.1. Social marketing and gamification

Consumers often face limited motivation to perform social marketing behaviours, such as exercise, owing to common inherent difficulties in performing the behaviours and benefits that may accumulate more slowly and less obviously than competing behaviours (Dibb and Carrigan, 2013; Hastings, 2003). This lack of positive exchange for the consumer presents a significant barrier to achieving behavioural outcomes (Binney et al., 2003; Rothschild, 1999). While some social marketers have focused on changing attitudes towards the behaviour to address this barrier, Rothschild (2009) argues that social marketers should adopt practices different from those of regulatory and education approaches, and focus on the provision of actual goods and services to provide real value to consumers and create positive exchange (see also Binney et al., 2003; Smith, 2009).

While emerging digital goods and services can negatively impact socially-critical behaviours (see Thaichon and Quach, 2016), they are increasingly being used in positive ways (Bernhardt et al., 2012). Owing to their cost efficiency (Lefebvre, 2009), and consumers' positive attachments to personal technology (Whittaker, 2012), mobile phone-based interventions, and particularly the practice of gamification, have been used to support behavioural change. Gustafsson et al. (2009) found that their gamified energy-saving app reduced consumers' energy use, while Hamari and Koivisto (2013) established that the 'Fitocracy' app improved attitudes and intentions towards exercise. Further, a recent meta-analysis by Hamari et al. (2014) showed support for the use of gamification to foster behaviour change across a variety of contexts.

Various researchers (see Deterding et al., 2011, Flatla et al., 2011 and Huotari and Hamari, 2012) have proposed that gamifications' demonstrated behavioural impact is due to the creation of positive value for consumers with more motivating and rewarding experiences provided by the game design elements. In a social marketing context, this added value may address the inherent negative exchange of many social marketing behaviours (Binney et al., 2003; Rothschild, 1999). While the support for the behavioural impact of gamification is well founded, Hamari et al. (2014) argue that an understanding of the mechanism through which gamification achieves the proposed motivating experience is still unclear. They specifically highlight methodological issues common to many gamification studies such as research lacking comparison groups or validated measures and comprising short treatments and single time-point measurements. Hamari et al. (2014) concluded that the current literature cannot discount the possibility of a novelty effect (short-term behavioural impact due to the novelty of exposure). On this basis, it is hypothesised:

**H1.** Gamification will significantly increase the performance of targeted pro-social behaviour over a short term period.

### 2.2. Gamification and intrinsic motivation

Research suggests that gamification's success as a behaviour change tool stems from the ability of game mechanics to tap into the inherent motivational appeal of commercial entertainment gaming (Ryan et al., 2006). It is proposed that gamification adds value to the behaviour through increasing the enjoyment consumers experience when performing the behaviour, thus increasing intrinsic motivation (Jung et al., 2010). This perspective originates from research examining the potential for game elements to produce intrinsic motivational pull in digital games for entertainment (Ryan et al., 2006) and is based on Self-Determination Theory (SDT).

SDT is a macro theory of motivation and an established framework in both gaming and gamification studies (Deterding, 2015; Seaborn and Fels, 2015). A key tenet of SDT is the differentiation between intrinsic and extrinsic motivation (Deci and Ryan, 2004). Further, according to SDT, there are three key psychological needs that all individuals seek to satisfy: autonomy (agency), competence (ability to meaningfully affect outcome) and relatedness (involvement with others and the need to represent oneself accurately) (Deci and Ryan, 2004). Cognitive evaluation theory (CET), a sub-theory of SDT, proposes that situations that facilitate an internal perceived locus of causality through satisfaction of the autonomy and competence needs increase intrinsic motivation (Deci and Ryan, 1985). While this theory has its critics (see Boal and Cummings, 1981; Harackiewicz et al., 1984 for notable counter-findings), it is well supported by empirical findings in both gaming and gamification contexts.

In the digital gaming context, competence and autonomy needs satisfaction has been positively associated with intrinsic motivation (Pe-Than et al., 2014; Przybylski et al., 2010) and both SDT and CET are widely accepted as a theoretical basis for explaining the behavioural effects of digital games (Ryan et al., 2006) and thus, conceptually, the behavioural effects of gamification (Jung et al., 2010). Peng et al. (2012) demonstrated the potential for gamification to increase intrinsic motivation through needs satisfaction via the use of a variety of autonomy-supporting game features, such as avatar customisation, and competence-supportive features, such as variable difficulty and performance indicators. On this basis, it is hypothesised that for a gamification product that is mechanically rich:

**H2.** Gamification will significantly increase intrinsic motivation to perform a behaviour.

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