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How do gamified mobile apps influence customer value, satisfaction and behavioural intentions to cease smoking?

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Abstract

Providing customers greater value through technological and mobile services has been an evolving topic in the services marketing literature (Gummerus et al., 2011; Pihlström et al., 2008; van Riel et al., 2005). In particular, there is growth in the development of mobile phone applications (apps) as part of the service mix for transformative service programs, such as mental health and wellbeing (Schuster, et al. 2013), as well as smoking (Abroms et al., 2013). However, what is yet to be explained is the influence of the relatively new phenomenon of "gamification" (the use of game like design features) in these apps on key service outcomes, such as customer value, satisfaction and behavioural intentions. The current research seeks to address this gap in the context of mobile apps designed to encourage smoking cessation.

Disciplines
Business

How do Gamified Mobile Apps Influence Customer Value, Satisfaction and Behavioural Intentions to Cease Smoking?

Introduction

Providing customers greater value through technological and mobile services has been an evolving topic in the services marketing literature (Gummerus et al., 2011; Pihlström et al., 2008; van Riel et al., 2005). In particular, there is growth in the development of mobile phone applications (apps) as part of the service mix for transformative service programs, such as mental health and wellbeing (Schuster, et al. 2013), as well as smoking (Abroms et al., 2013). However, what is yet to be explained is the influence of the relatively new phenomenon of "gamification" (the use of game like design features) in these apps on key service outcomes, such as customer value, satisfaction and behavioural intentions. The current research seeks to address this gap in the context of mobile apps designed to encourage smoking cessation.

Experiential Value

Experiential value, defined as the "*interactive, relativistic, preference experience*" (Holbrook, 2006, p.715) is at the heart of services marketing and exchanges with consumers (French and Lefebvre, 2012), as it helps explain why consumers use a service (Cronin Jr et al., 2000). The experiential perspective to value tends to investigate the value experience (Heinonen and Strandvik, 2009; Gummerus and Pihlström, 2011) and takes into account modern, interactive and service-orientated exchanges (Lin et al., 2005; Mayr & Zins, 2012). Investigations of experiential value in service experiences (Wu and Liang, 2009), mobile services (Gummerus and Pihlström, 2011) and experiences with using other technological marketing tools, such as retail websites (Mathwick et al., 2001) show experiential value creation to be important. Consumers seek services that provide experiential value and such value can influence attitudes, satisfaction, behavioural intentions and behaviours both pre- and post-purchase (Mathwick et al., 2001; Sweeney and Soutar, 2001; Zainuddin et al., 2013).

However, while experiential value has been well researched in commercial marketing, research concerning experiential customer value in transformative health services is presently lacking. Where it has been conducted, the focus has been on traditional, face-to-face health services (e.g., Zainuddin, 2013; Zainuddin et al., 2013), not mobile service apps, which have seen significant growth. Further, a growing trend is the use of gamification in these apps as a means to engage users and offer a personalised service, but there is an absence of empirical work which explores the impact on experiential value creation and the resulting influence on key service marketing outcomes, such as satisfaction and behaviour.

Gamification

is attracting the attention of services marketers as a means to potentially increase customer interaction with mobile health services apps and deliver additional forms of experiential value . Gamification offers this potential through the use of motivating features and game-like design techniques, such as personalised feedback, scoreboards, badges, levels, challenges, social support and avatars (Harwood et al., 2015; Muntean, 2011) to improve the user experience of interactive systems. Unlike a game, which has a complex system of rules and series of tasks that guide players through a process to master those rules on an electronic platform (Domínguez et al., 2013), gamification employs 'gameful' design in contexts not restricted by electronic platforms and beyond entertainment (Zichermann et al., 2011).

Scholarly investigations in commercial contexts have demonstrated the experiential value created by online games and m-games (Okazaki, 2008), as well as m-services (Gummerus & Pihlström, 2011; Pihlström & Brush, 2008; van Riel & Pura, 2005). Further, there is evidence that experiential value can be delivered by social marketing m-games that attempt to encourage behaviour change in health and well-being contexts (Mulcahy, et al., 2015a). These studies provide a basis for understanding customer value in gamified mobile health services apps.

Desired Outcomes (Satisfaction and Behavioural Intentions)

Previous research in mobile services has shown experiential value influences desired outcomes, such as satisfaction and behavioural intentions (Lin et al., 2006). These are often key goals of services marketing programs. However, what is not known is how experiential value potentially derived from a gamified mobile health services app influences satisfaction and in turn, behavioural intention to perform a health behaviour.

Method

We sought to investigate how gamified mobile apps influence experiential value, satisfaction and behavioural intention to perform a health behaviour. Mobile services apps targeting smoking cessation were selected as the context for our study, owing to the importance of this health behaviour and increased use of apps in this context by services marketers (Abroms, et al., 2013). Two freely available "quit smoking" mobile apps were selected, which have game applications and use gamification to assist smokers cease smoking: *My Quit Buddy* (targeted to the general population of smokers) and *Quit for You Quit for Two* (targeted at women who are pregnant or planning to become pregnant).

Participants were recruited from a commercial online consumer panel provider and invited to use one of the two mobile apps, as well as complete two online surveys. The target population for this research was 18-35 year old smokers, as this is the age group targeted by the apps. A quantitative approach was employed, whereby participants initially completed a screening survey with demographic, gameplay and smoking behavior questions to determine eligibility for participation and group

allocation (e.g., only women who were planning to have children were allocated to the *Quit for You Quit for Two* app). Participants then downloaded and used their allocated app for two weeks, followed by completion of a second survey, which included measures for the constructs of interest and questions to verify app usage. A total of 221 respondents completed all phases of this research (*My Quit Buddy* app N=113; *Quit for You Quit for Two* app N=108).

Following app usage, participants were questioned about gamified features, experiential value, satisfaction and behavioural intention via the online survey. Building on the work of Mulcahy et al. (2015a) concerning social marketing m-games, five gamified features were examined: character (i.e. character, avatar or entity that the player operates), challenge (i.e. tasks and activities), feedback (i.e. winning and losing features, such as losing or accumulating points), virtual training (i.e. representation of real world situations, where behaviour is performed virtually) and behaviour monitoring (i.e. customised tracking of a user's behaviour). Value frameworks presented by Sweeney and Soutar (2001) and Mathwick et al. (2001) were considered to identify three value dimensions of relevance to the current research: amusement (i.e. the amount of fun using the app), information (i.e. facts about how to change behaviour), and distraction (i.e. an activity which distracts the individual from performing an undesired behaviour). For the outcome variables of satisfaction and behavioural intentions, Zainuddin et al.'s (2013) scales was used. Data were analysed via SEM using AMOS.

Results

The measurement model was a good fit with the data 1.84 (CMIN/DF), .06 (RMSEA) and .92 (CFI), which then allowed for subsequent testing of the full structural model. Quantitative testing revealed the structural model also produced a good fit with the data: 1.88 (CMIN/DF), .06 (RMSEA) and .91 (CFI). Based upon the significant relationship thresholds of t-value ≥ 1.96 and $p < .05$, the output of the structural model revealed support for eleven relationships tested between gamified app features, experiential value, satisfaction and behavioural intention (see Table 1 and Figure 1). Specifically, the gamified features of character, challenge, virtual training and behaviour monitoring influenced amusement, information and distraction value, and these experiential value dimensions in turn influenced satisfaction with the app. Satisfaction influenced behavioural intention to quit smoking.

Table 1: Results

Relationship	B	β	S.E	C.R (t)	p.	Supported/Rejected
Gamified Design Features and Experiential Value						
Character to Amusement	.18	.18	.13	1.47	.142	Rejected
Character to Information	**.39**	**.44**	**.09**	**4.13**	**.000**	**Supported**
Challenge to Amusement	**.82**	**.57**	**.18**	**4.52**	**.000**	**Supported**
Challenge to Distraction	**.47**	**.29**	**.14**	**3.23**	**.001**	**Supported**
Feedback to Information	-.08	-.04	.11	-.74	.457	Rejected
Virtual Training to Information	**.31**	**.30**	**.11**	**2.65**	**.008**	**Supported**
Virtual Training to Distraction	**.38**	**.31**	**.14**	**2.59**	**.008**	**Supported**
Behaviour Monitoring to Information	**.23**	**.22**	**.08**	**2.65**	**.009**	**Supported**
Behaviour Monitoring to Distraction	**.23**		**.10**	**2.26**	.02	**Supported**
Experiential Value to Satisfaction						
Amusement to Satisfaction	**.35**	**.41**	**.04**	**7.10**	**.000**	**Supported**
Information to Satisfaction	**.26**	**.28**	**.05**	**4.53**	**.000**	**Supported**
Distraction to Satisfaction	**.26**	**.34**	**.04**	**6.19**	**.000**	**Supported**
Satisfaction with App and Behavioural Intentions to not Smoke						
Satisfaction to Behavioural Intentions	**.40**	**.54**	**.06**	**6.63.**	**.000**	**Supported**

Figure 1: Structural Model
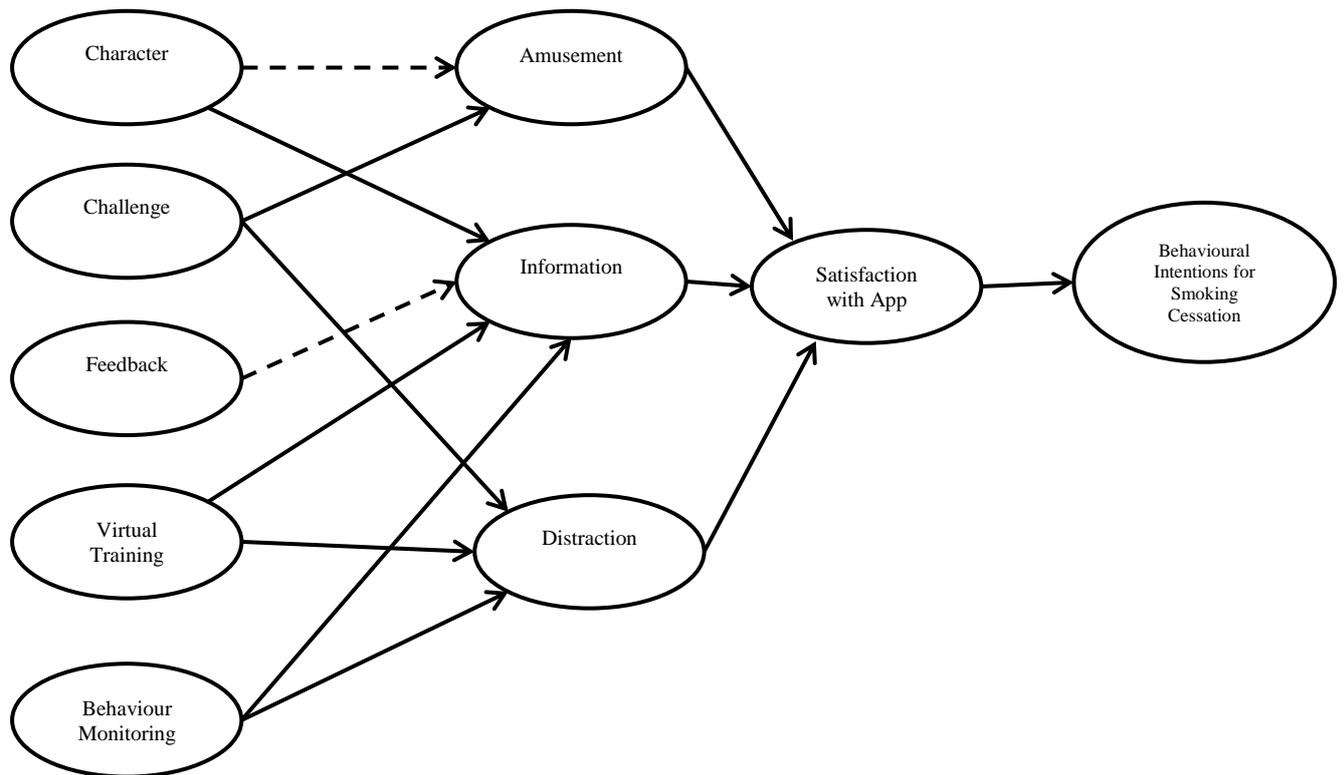
Dashed Lines indicate non-significant relationships

Discussion

The findings provide important empirical evidence demonstrating the influence of gamification on the creation of experiential value for consumers. This in turn, influences their satisfaction with the technology and users' behavioural intentions to perform a desired health behaviour. This study provides an important contribution to service marketing research, as these results can inform transformative services marketing strategies about the use and incorporation of experiential value into mobile services. Specifically, amusement value, information value, and distraction value are important value dimensions to be included in the development of m-services and mobile app technologies. In addition, four gamification design features (character, challenge, virtual training, and behaviour monitoring) play an important role in the creation of experiential value for mobile app users. These findings address gaps in the current literature by identifying the important design features to be included in technological services, that influence experiential value, satisfaction, and behavioural intentions for a health or well-being behaviour (Mulcahy et al., 2015; Zainuddin et al., 2013). Additionally, the current study's findings extend the knowledge base in the transformative service research area by investigating non-traditional interactions between service and consumer entities through mobile platforms and technologies. Much of the existing work in this area is focused on human-to-human contact with service employees, as well as consumer entities and how these impact upon well-being outcomes (Anderson et al., 2013; Rosenbaum et al., 2013; Zainuddin et al., 2011). The current study demonstrates the relevance of electronic and mobile technologies in transformative service provision. The use of virtual or electronic forms of transformative services, such as mobile apps, allow organisations, particularly those reliant on charitable donation or public sector funding, to provide a personalised service experiences to users. These personalised service experiences have the capacity to improve well-being and can overcome the challenges associated with face-to-face service delivery, such as recruiting/retaining volunteer service providers and the cost implications of inter-personal service delivery (Russell-Bennett et al., 2013).

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