



# Applying an ecological model to social marketing communications

Applying an ecological model

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## Abstract

**Purpose** – By applying ecological models of health behaviour to marketing communications to achieve behaviour change, this paper aims to illustrate the importance of taking into account various economic, environmental and social influences.

**Design/methodology/approach** – A two-part study was undertaken. Part one involved exploring the lived worlds of the targeted population. Part two explored how the needs of the target audience informed a social marketing communications strategy. This was illustrated through Childsmile, a Scottish Government funded oral health institution.

**Findings** – A variety of intra- and inter-personal influences were identified that encouraged or discouraged oral health. Complementing this was how these needs are incorporated into an ecological social marketing communications campaign. Although the long term effects of the ecological social marketing campaign will not become evident for a number of years, initial results indicate its important role in changing behaviour.

**Practical implications** – The importance of engaging with various groups within social marketing is shown. Specifically, the need to understand and encourage interaction between individuals, their community, health institutions and the Government.

**Social implications** – Behaviour change, through social marketing communications, is possible among socio-economic deprived groups. Change supported with face to face interactions with health professionals.

**Originality/value** – Previous criticisms of social marketing research being American-centric, and avoiding issues around socio-economic deprivation are addressed. In addressing this, the paper also answers calls for research into ecological models of social marketing communications to understand how influences affect its applicability.

**Keywords** Behaviour change, Children (age groups), Communications, Ecological model, Oral health, Social marketing

**Paper type** Research paper



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### Introduction

Social marketing aims to encourage behaviour changes for the greater good of the population and has been shown to positively affect knowledge, awareness, attitudes and behaviour in a number of areas (Gordon *et al.*, 2006; Stead *et al.*, 2007). However, although recognition of the importance of consumer-community oriented and evidence based public health approaches has increased, those interventions that predominantly rely on communication and education have failed to reduce the gap in health status between different socio-economic groups (Ram, 2006; Zimmerman and Bell, 2006). One possible explanation for this disparity lies in the increased awareness of economic, environmental and social influences in determining an individual's health (Andreasen, 2002).

Wymer (2011) argues that social marketing practitioners and scholars have failed to consider the effects of the environment and appropriate institutions in delivering positive behaviour changes. Hence, for social marketing programmes to achieve the aim of delivering behaviour change, there is a need to address an individual's inter-relationships within their environment. Yet these inter-relationships remain unclear and difficult to act on (Noar and Zimmerman, 2005), despite calls for an increased research focus on contextual and social influences on health (Koh *et al.*, 2010; Marmot *et al.*, 2008).

The Social Ecological Model of health behaviour (SEM) addresses these criticisms, by providing a theoretical framework to understand environmental inter-related influences affecting an individual's health related behaviours (Sallis *et al.*, 2008). Such is the prevalence of the SEM in public health discourse that its application is recommended by the World Health Organisation (Blas and Kurup, 2010), while the Institute of Medicine and the Association of Schools of Public Health calls for the SEM to be taught to students as an effective means of achieving health behaviour change (Gebbie *et al.*, 2003).

Considering the importance of the SEM and its application to inter-related influences that affect health related behaviour, research into their application in social marketing is limited. For example, Golden and Earp (2012) reviewed the application of the SEM to health behaviours over the period 1989-2008 and noted that despite calls for a more comprehensive approach to understanding how use of the SEM can help solve public health problems, their practical application remains uncertain. Furthermore "calls for multilevel interventions that better incorporate social, institutional, and policy approaches to health promotion have gone largely unheeded" (*ibid.*, p. 397). For example, SEM studies into community and policy related involvement in health behaviour change accounted for only 20 and 6 per cent of published papers, while only 39 per cent reviewed related institutional level activities. Instead, previously published research has tended to focus on individual level activities within the SEM (*ibid.*). Consequently, SEM applications have broadened our understanding of health problems, without identifying specific influences or providing guidance on improving health interventions (Glanz *et al.*, 2008; Golden and Earp, 2012).

Application of the SEM to social marketing communications is appropriate where the emphasis lies in encouraging people to take greater responsibility for health related decisions. This encouragement is facilitated through bottom-up and top-down approaches to deliver health behaviour change. The former involves the individuals and their communities understanding their behaviours and being empowered through

alliances to change their behaviours (Oetzel *et al.*, 2006). For example, the importance of parents and schools in providing social support (Coker *et al.*, 2002) and positive opinion leaders, such as peers and spouses, in promoting good health (Durantini *et al.*, 2006). This is an approach that Dempsey *et al.* (2011) argue encapsulates the essential aspects of health promotion: empowerment, equity, inclusion, respect and social justice. In contrast, the top-down approach relies on changes in policy and institutions to deliver behaviour change. Incorporating both these aspects appears to deliver effective health promotion campaigns (Jackson *et al.*, 2007). Yet, considering the widespread recognition of these approaches, there is a lack of clarity regarding the concepts of social marketing communication and their relevance to public health (McDermott *et al.*, 2005; Maibach *et al.*, 2002).

The aim of this paper is to investigate and explore how a SEM of social marketing communications could be used to deliver behaviour change. In doing so we aim to address criticisms of the SEM and its application to social marketing communications by attempting to answer the following questions:

- Q1. How can institutions' involvement in developing social marketing communications influence behaviour changes to reduce the health status gap between different socio-economic groups?
- Q2. How are social, institutional, and policy inter-related influences that affect health related behaviours incorporated into social marketing communications?
- Q3. By applying a SEM to health orientated social marketing communications, how can empowerment, equity, inclusion, respect and social justice be achieved?

The aim and questions of this paper are addressed through a case study that analyses the development and implementation of a social marketing communications strategy to bring about health behaviour changes. The case study reviews a health behaviour change campaign undertaken by NHS Health Scotland in partnership with Childsmile, an evolving childhood oral health service delivered across Scotland. Using the development and implementation of Childsmile's social marketing communications strategy as a case-study affords exploration of how a SEM of social marketing communication can be used to deliver behaviour change.

Childsmile aspires to provide access to care for every new-born, combining a targeted and universal approach to children's oral health improvement through four programme components (Core, Practice, Nursery and School). This "Integrated Programme" provides a comprehensive pathway of care including: supervised nursery tooth-brushing for all three to four year olds with extended supervision to Primary 1 and 2 classes in disadvantaged areas and distribution of oral health packs (Childsmile Core); tailored oral health promotion and clinical prevention in dental practices from six months of age with additional support to those families most at risk of dental caries in the home and community setting from birth (Childsmile Practice); and clinical preventive (fluoride-varnish) programmes in priority nurseries and primary schools (Childsmile Nursery and School). Childsmile not only involves programme staff and other dental and oral health providers, but requires the support of a range of professionals working with children and families.

### **The Social Ecological Model and its components**

Originating in the 1950s (Hawley, 1950), the SEM aims to identify the inter-relationship and influence of economic, environmental and social influences on the community, inter-cultural and inter-personal, and institutions within. Developing the SEM further, Bronfenbrenner (1977, 1979) categorised the SEM as consisting of four inter-related systems: micro, meso, exo and macro. Recognising how these systems interact with each other offers opportunities to address them leading to the desired behaviour change, illustrated here by examples of supporting children's oral health.

*Microsystems* represent aspects of the individual and their social group's self-identity affecting their behaviours. For example, the uptake of health orientated behaviours can be inhibited, or enhanced, by personal motivation, intentions and demographic profile (O'Donnell, 2005; Ryan and Deci, 2000), such as the parents' level of education, and attitudes towards oral health (Grembowski *et al.*, 2008; Holme *et al.*, 2009; Saied-Moallemi *et al.*, 2008). Consequently, such factors can inhibit parents taking their children to the dentist, leading to anxiety towards visiting a dentist (Soulliere, 2009), mistaken oral health beliefs and perceived low importance of primary teeth (Kelly *et al.*, 2005).

*Mesosystems* represent social structures, including laws (enforced change, such as higher taxes on cigarettes to discourage smoking), and Government policies (such health orientated marketing communications) through to encouraging service development, such as child orientated dental services. For example, in a study of dentists from former East and West Germany, West German dentists, unlike their Eastern counter-parts were not trained in the levels of stress that children aged three to six years old experience from a visit to the dentist (Splieth *et al.*, 2009).

*Exosystems* reflect the importance of the community in developing collective efficacy (Cohen *et al.*, 2006). For example, a British study, involving 268 mothers of young children at high-risk of dental cavities found gaps in knowledge, and weak community and family support regarding oral health (Blinkhorn *et al.*, 2011). Yet health orientated social marketing campaigns may challenge community social norms that the individual exists within. Consequently, well intentioned interventions may produce resistance to change from the targeted community.

*Macrosystems* represent the cultural context that the individual exists within, including society's cultural expectations of the individual. For example, a positive cultural belief towards oral health can mitigate structural barriers, such as a lack of accessible transportation, school absence policies and discriminatory treatment (Kelly *et al.*, 2005). However, this assumes that the target audience are health literate, i.e. have the ability to understand and comply with the required healthy behaviour (Nutbeam, 2000; Kickbusch *et al.*, 2008). A lack of health literacy has been identified as a significant barrier in educating a population to undertake healthy behaviour changes (Nielsen-Bohlman *et al.*, 2004).

### **Methodology**

The aim of this paper is to investigate and explore how a SEM of social marketing communications may achieve behaviour change. A reflexive, mixed methods case study approach was used, which provides opportunities to examine the rich variety of primary and secondary data collected, and to evaluate policies and interventions and their impact on inter-related environmental influences affecting children's oral health.

A triangulation of methods was employed, including documentary review, observation at meetings, in-depth telephone interviews with those involved in developing Childsmile’s social marketing communications strategy and a review of Childsmile’s use of findings from a needs assessment (undertaken by the Institute for Social Marketing) and commissioned to inform the development of its marketing communications campaign. Firstly, the documentary review included Childsmile and Scottish Government’s oral health documents to assess policy decisions and objectives, and internal Childsmile planning documents, processes and monitoring data made accessible to the authors (see Table I).

Second, supporting these documents, two members of the NHS Health Scotland/Childsmile marketing communications team were interviewed twice. These interviews, using open-ended questions, explored the planning and information-gathering, and its subsequent use and delivery in Childsmile’s marketing communications. Third, complimenting this, one of the authors observed key meetings to progress initial planning of Childsmile’s marketing communications campaign allowing further insights into Childsmile’s programme constraints and opportunities.

Finally, the needs assessment approach undertaken by the Institute for Social Marketing on behalf of Childsmile was critically reviewed alongside Childsmile’s use of the findings, in order to plan their social marketing communications strategy.

This needs assessment comprised 18 stakeholder focus group interviews. The focus groups aimed to identify core issues surrounding oral health care and related communications in relation to young children from the perspective of parent/carers

Data	Format	Scope
Communications strategy	Communication reports	Two reports (2009)
Childsmile – National Headline Data	Monitoring reports	Reports – (March/September 2011, March 2012)
Service improvement activity	Documenting work undertaken as part of the Central Evaluation and Research Team’s formative activity	Six reports (2009-2011)
Academic papers	Papers that discuss and analyse Childsmile activities	Six papers (2009-2011)
Childsmile web site	Parents and carers/professional	Various web pages
NHS Health Scotland	Health initiatives	Five reports including: SIGN 83 <i>Prevention and management of dental decay in the pre-school child</i> (2005); <i>Better Health, Better Care</i> (2007); and Scotland <i>Getting it Right for Every Child</i> (2008)
Scottish Executive	Health initiatives	Report – An Action Plan for Improving Oral Health and Modernising Dental Services in Scotland (2005)

**Table I.**  
Documents reviewed

and professionals involved with early years. Stokols (1992) argued that the premise of the SEM required understanding of how target audiences interact with their environment, and focus groups were chosen as an effective way to gain rich data and “real life” understanding from a range of stakeholders, within the research resources (Petty *et al.*, 2012). A topic guide, used to ensure coverage of key issues, was developed from the research questions, a literature review including oral health and behaviour change papers, and input from the programme steering group (refer to the Appendix). Respondents were also encouraged to raise any additional issues they thought were relevant. Interviews were digitally-recorded with participants’ permission, transcribed in full, anonymised and analysed thematically.

One set of focus group participants consisted of first time parents/main carers with one child aged 0 to three years, or parents/main carers with more than one child who were eligible for the nursery and school-based Childsmile programmes. The sample was drawn from lower socio-economic groups (C2DE) living in disadvantaged areas in Scotland, reflecting key targets. Ten focus groups were recruited ( $n = 53$ , groups comprising three to eight respondents each) (see Table II).

Eight mini-focus groups representing professionals were also recruited consisting of Childsmile oral health workers and other related health professionals such as Public Health Nurses/Health Visitors and Midwives; and Nursery Staff (see Table III).

Analysis of the triangulated case-study data used an evaluative approach. Rossi *et al.* (2004, p. 28) describe this as an approach which uses “. . . social research methods to systematically investigate the effectiveness of social intervention programmes.” Such an evaluation requires an objective assessment and appraisal of the social marketing activity to reach relevant conclusions for future research and programmes (World Health Organisation, 2001). This was achieved for this paper through applying Naidoo and Wills (2000) evaluation criteria:

- *Effectiveness* – the extent to which the health promotions aims and objectives were met;
- *Appropriateness* – how relevant was the intervention to the needs of the target audience;
- *Acceptability* – was the promotion carried out in a sensitive, appropriate manner;

Child age group	Location
One child; 0-3 years	West <sup>a</sup> Urban
Children ages 0-3 years and 4-8 years	West <sup>a</sup> Urban
One child; 0-3 years	West <sup>a</sup> Urban
Children ages 0-3 years and 4-8 years	West <sup>a</sup> Urban
BME group (at least one child 0-8 years)	West <sup>a</sup> Urban
One child 0-3 years and 4-8 years	East <sup>b</sup> Urban
Children ages 0-3 years and 4-8 years	East <sup>b</sup> Urban
One child; 0-3 years	North <sup>c</sup> Rural
Children ages 0-3 years and 4-8 years	North <sup>c</sup> Rural
Children ages 0-3 years and 4-8 years	East <sup>b</sup> Urban

**Table II.**  
Parents/carers sample

**Notes:** <sup>a</sup>Areas where *Childsmile* Practice established; <sup>b</sup>Areas where *Childsmile* Nursery and School established; <sup>c</sup>Areas where *Childsmile* components were not yet rolled out

No.	Professional group	Administrative area (main <i>Childsmile</i> component at the time)	Geographical area
1	Public health nurses/health visitors	East ( <i>Childsmile</i> Nursery and School)	Urban
2	Public health nurses/health visitors	West ( <i>Childsmile</i> Practice)	Urban
3	Public health nurses/health visitors	North (Early roll-out <i>Childsmile</i> unknown in interview areas)	Rural
4	Nursery/nursery school staff	East ( <i>Childsmile</i> Nursery and School)	Urban
5	Nursery/nursery school staff	North (Early roll-out <i>Childsmile</i> unknown in interview areas)	Rural
6	Community midwives	West ( <i>Childsmile</i> Practice)	Urban
7	<i>Childsmile</i> Extended Duty Dental Nurses (EDDNs) and Dental Health Support Workers (DHSWs) <sup>2</sup>	East ( <i>Childsmile</i> Nursery and School)	Urban
8	<i>Childsmile</i> Extended Duty Dental Nurses (EDDNs) and Dental Health Support Workers (DHSWs)	West ( <i>Childsmile</i> Practice)	Urban

**Table III.**  
Sample of key professionals

- *Efficiency* – were time, money and resources used to maximum effect; and
- *Equity* – did the promotion have sufficient resources equal to the target audience needs.

### Findings

The findings are presented using Naidoo and Wills (2000) evaluation criteria outlined previously.

*Effectiveness* – the extent to which the health promotions aims and objectives were met. The World Health Organisation (2001) argue that the evaluation of any marketing communications campaign must commence with evaluating the clarity of the concept, i.e. were the aims clearly expressed and were they met. This is particularly relevant to Childsmile's marketing communications and the SEM as it infers a response to the influences of: the target population's demographics, the nature of the environment that the population exists within, such as their community and social networks, and how people engage with various health related institutions (Brug, 2006).

Childsmile summarises its vision as combining targeted and universal approaches to tackling children's oral health improvement through the four programme components (Core, Practice, Nursery and School) as mentioned previously. Focussing on the communication strategy the goal is 'to drive uptake of Childsmile within each local Health Board, with a focus on the early years' (Moore *et al.*, 2010).

Considering the environment's effect on children's oral health and Childsmile's vision and goals, Childsmile's marketing communications addressed two themes: the need to educate parents about children's oral health and Childsmile, and encourage early registration with a dental practice, and the need to support dental practices and related professionals in providing friendlier service encounters, and in encouraging

oral health behaviours. Childsmile developed a marketing communication campaign that addressed these themes while addressing wider environmental influences identifiable with SEM. Table IV describes the marketing communications materials for the public and Table V materials for professionals:

Childsmile’s vision and objectives were a response to Scotland having one of the highest rates of childhood dental decay in Europe, coupled with significant inequalities in oral health, low rates of dental registration for young children (35 per cent of two year olds in 2004), limited preventative activity, and oral health problems being the most common reason for children to have an elective general anaesthetic (Macpherson *et al.*, 2010).

Indeed, although inequalities in oral health persist (Macpherson *et al.*, 2011), improvements in children’s oral health are evident and, encouragingly, national targets calling for 60 per cent of school-aged children to be caries free by the year 2010 have been met. A national longer-term assessment of Childsmile impact, led by Glasgow University will deliver further insights into the effectiveness of the marketing communications, although the natural, roll-out of the programme and resultant non-experimental study design will not afford assessment of the unique contribution of Childsmile’s social marketing activity (over and above other programme interventions).

Promotion type	Relevance to focus group SEM findings	Target audience	Relevance to target audience
DVD “How to protect your children’s teeth”	Microsystems: addressed low oral health knowledge	Parents	Distributed through nurseries, schools, dental practices and local libraries. DVD aims to combat negative norms held by the community to accessing dental care. The DVD communicates, through young children themselves, the vulnerability of young children to oral hygiene problems
Information leaflets, including: “Drinks for babies and young children” and “Tooth brushing standards”	Macrosystems: offered support and guidance for parents, indirectly addressing pressure from family relatives for children to eat unhealthy foods		Leaflet aims to promote parental uptake of breastfeeding, milk and water as safe drinks for their children’s teeth and other advice on encouraging healthy teeth among children up to five years of age
Website (www.childsmile.org)	Macrosystems: parents fears of attending a dentist and poor oral health knowledge		Website provides information on access to Childsmile activities (up to the age of 12). Website aims to also reassure the parent about Childsmile intentions
Tooth brushing charts	Microsystems: encouraging positive oral health habits among children	Children	Encourages children to record when they brush their teeth, reminding children of the need to brush regularly
Comic			Educational tool aimed at informing children about oral health

**Table IV.**  
Childsmile marketing communication materials – public



Promotion type	Relevance to focus group SEM findings	Target audience	Relevance to target audience
DVD, "Tooth brushing programme"	Microsystems: need for dental practices to encourage children's visits to dentists, and overcome parental fears	Nurseries, schools, dental practices and local libraries	Educates and supports staff in establishing a tooth brushing programme in preschool environments. Important as parents from socio-economic deprived groups may be more likely to be employed in jobs with unfriendly child hours
Posters		Nurseries, schools, dental practices and health care centres	Aims to encourage dental attendance, by allaying fear of visiting the dentist
Stickers		Dentists/children	Offered to children visiting the dentist
Booklet – "First teeth, healthy teeth"	Macrosystems: addressed parents' shame regarding own oral health, consequently encouraging uptake of oral health among children	Health visitors and nurses offering an accessible information source for professionals to engage with parents	Aims to offer support "in delivering oral health promotion advice with confidence, and provides easy access to information on subjects including oral health in pregnancy, registering with a dentist, teething, tooth brushing and nutrition" (Childsmile, 2011)
Food diary	Macrosystems: supporting parent in recognizing unhealthy foods eaten, and indirectly resisting extended family pressures for children to eat unhealthy foods	Dentists/parents	Given to parents to monitor sugar intake through foods and drinks. Parents often felt pressurized by extended family members to let their children eat sugary foods. Food diary increased awareness and potential oral health implications, thereby encouraging reduction of sugary foods
Website ( <a href="http://www.childsmile.org">www.childsmile.org</a> ) Booklets	Mesosystems: aims to inform dental practices about Childsmile and how to support clients	Dental practices	Provides specific information on engaging with clients and how to introduce and facilitate Childsmile interventions for community partners (e.g. Public Health Nurses and nursery and school teachers) as well as for Childsmile staff

**Table V.**  
Childsmile marketing communication materials – professionals

Although assessment of more proximal measures is subject to the same cautions with regard to attribution as longer-term health outcomes, it can be argued that shorter-term outcomes (in terms of Childsmile's over-arching theory of change) such as the number of nurseries and schools participating in the programme, or the number of children enrolled at a dental practice, provide a more timely measure of the communication strategy's impact at this relatively early stage of programme delivery. Childsmile monitoring activity provides some support for the suggestion that the marketing communications programme is having some success in engaging its target audience. In the period 2006-2010, the proportion of socially deprived schools, (identified by the Scottish Index of Multiple Deprivation), participating in the Childsmile tooth-brushing scheme increased from 52.7 per cent ( $n = 482$ ) to 94.7 per cent ( $n = 540$ ), while the percentage of all nurseries participating remained around 94 per cent during this period (Childsmile Evaluation and Research Team, 2011). A similar improvement is the increase in the number of children attending a Childsmile dental practice rising from 1,142 in 2006 to 28,164 by 2010 (Childsmile Evaluation and Research Team, 2011).

*Appropriateness* – how relevant was Childsmile's marketing communications programme to the social, institutional, and policy needs? In response to, Childsmile's focus on socio-economically deprived communities, issues of empowerment, equity, inclusion, respect and social justice within the SEM framework are considered.

Childsmile actively involved key social, institutional, and policy stakeholders in the development of their marketing communications. This was achieved through a variety of approaches, including: clinical guidelines and working with policy makers, previous experiences of Scottish child orientated oral health programmes, and commissioning The Institute for Social Marketing to undertake a needs assessment exercise to identify the target audiences' core issues surrounding oral health. This needs assessment comprised two complimentary methods. First, secondary data identifying oral health problems among Scottish children was collected and reviewed. Second, focus group interviews were undertaken in order to facilitate stakeholder participation during Childsmile's marketing communications initial design stage. Focus groups were deemed appropriate for exploring the views and shared experiences of participants. Importantly, this approach benefits from respondents' interaction with one another as well as the moderator (Webb and Kevern, 2001), promoting reflection on the experiences of particular services or activities, and generating further insights and ideas for potential improvements, perhaps more than one-to-one interviews may achieve.

The key findings from the first set of focus groups (first time parents/main carers) and how the various SEM systems affected children's oral health are presented in Table VI.

A key aspect of social marketing communications and their appropriateness is that the communities Childsmile targeted experience the communication materials as empowering, equitable, inclusive, respectful and offering social justice. The issues raised from these focus groups were partially addressed through existing programme interventions, on a face-to-face basis, through health professionals either in the parents' home or other community venues, with frequency and duration tailored to individual needs. Materials developed as part of Childsmile's marketing communications campaign, were designed to support (and be delivered within) existing programme interventions. For example, mistaken oral health beliefs, low importance of primary teeth and perception of need balanced in relation to costs have all been attributed to

SEM system identified	Participant narrative	Relevance to SEM	Relevance to social marketing communications
Micro-systems	<p>I would rather not take him because I could feel myself, as soon as I go in to a dentist the sweat runs off me and I do not want to pass that on to him [...] I could be sitting smiling and the tears are streaming down my face you know, and I really do not want him to see me like that and I do not want him to feel any of that from me (Parent, East (Fife), Children 0 to three and four to eight years)</p> <p>I was told the next time I ever go to the dentist I was to make an appointment for the little one, and that way he can get his teeth checked out. But I do not go to the dentist regularly myself (Parent, West (Glasgow), BME at least one child 0 to eight years)</p> <p>Mother (M), and her mother (GM): My mum's determined, he loves lollipops and it is just, it makes you cringe. "Do not give him a lollipop, his teeth are trying to grow, leave him alone [M] But he loves it [GM]"</p> <p>No, he does not. You give him a worm and he will love that too [M] (Parent, East (Fife) Children 0 to three and four to eight years)</p> <p>I made an appointment but they said that it was too full and they had get back to me, so I am still waiting (Parent, West (Glasgow), One child 0 to three years)</p> <p>I've actually got false teeth due to being too scared of the dentist. And now I regret losing all my teeth [...] And I keep saying to them [her children], 'You do not want these. They're horrible. They're really horrible (Parent, West (Glasgow), Children 0 to three and four to eight years)</p>	<p>Individual and their social group's sense of self-identity affected participants' oral health. Identifying personal motivations, intentions and demographics can serve to either encourage or discourage oral health</p> <p>Low importance placed on children's oral health, supporting Kelly <i>et al.</i>'s (2005) findings</p> <p>Participants' cultural context affecting oral health</p>	<p>Parental psychological fears manifesting through dental anxiety identified, reflective of earlier observations (Grembowski <i>et al.</i>, 2008; Saied-Moallemi <i>et al.</i>, 2008)</p> <p>Parents may have low oral health knowledge and awareness, consequently likely to socialize similar behaviours onto their children</p> <p>Grandparents, aunts and siblings encourage unhealthy food habits that undermine oral health, supporting Blinkhorn <i>et al.</i>'s (2011) observations</p> <p>Parents unable to access dental services or to obtain an appointment or finance the travel to more distant NHS services, reflective of Soulliere's (2009) findings</p> <p>Participants' shame regarding their own poor oral health, derived from societal expectations, motivated them to seek dental services for their children. This finding differs from Amin and Harrison (2009) who identified poor parental oral health as a barrier to engagement</p>

**Table VI.**  
Focus group findings: parent/carers from socio-economic deprived communities

parents not attending to their child's oral health needs (Kelly *et al.*, 2005). Following the focus group findings, attention was given to how Dental Health Support Workers (DHSWs), lay workers trained and employed by Childsmile, who work alongside professionals (e.g. Public Health Nurses and teachers), communicate the Childsmile message to families. Delivery was enhanced through distribution of revised Childsmile marketing communication materials to advise parents on what foods and drinks were suitable for their baby, as well as encouraging discussions regarding teeth cleaning, toothpaste and oral health.

However, the appropriateness of some aspects of Childsmile's marketing communication materials can be questioned. For instance, Childsmile's parents' web site aims to provide oral health information. The extent that parents from socio-economic deprived groups' access this web site is uncertain. Even though Childsmile made considerable attempts to ensure the language was user friendly, issues of literacy needs to be considered. For example, a study by McInnes and Haglund (2011) found that text used in web sites often became increasingly complex and prohibitive for those with low levels of health literacy. Childsmile's use of web sites then may be more relevant to increasing their visibility to a wider audience and addressing wider political concerns (such as being seen to involve parents) rather than actually increasing reach to socio-economic deprived groups.

Following the parent focus groups, eight mini-groups of health professionals and those involved in pre-school education were recruited through relevant management structures. Involvement of a range of professionals and their commitment to delivering and contributing to Childsmile's objectives was deemed as essential. The findings from these focus groups are summarised in Table VII.

The professional's focus groups' data indicated that any social marketing communications needed to overcome cultural, personal and structural boundaries manifesting in all aspects of the SEM systems. The findings indicated how the environment was affecting children's oral health through lack of support and access to dental services (top-down effects). Only a few examples of bottom up effects in the form of community alliances regarding oral health were evident, typically involving a lack of parental and school support.

*Acceptability* – were Childsmile's marketing communications carried out in a sensitive, appropriate manner? The roles of various SEM systems, identified from the focus groups, were supported through Childsmile's existing programme of intervention activity, much of which involved direct involvement with dental practices engaging with the communities they existed within. This approach aimed to address issues of acceptability. These interventions aimed to achieve collective efficacy through communicating and promoting Childsmile oral hygiene activities and addressing previous calls for greater community involvement (Cohen *et al.*, 2006).

Dental anxiety identified from the focus groups and already recognised and targeted as an issue by the wider Childsmile programme was further addressed by the development of a variety of marketing communication tools aimed at supporting dental practices to turn a potentially fearful encounter into a positive one. This included: offering children a tooth brushing wall chart, a food diary (to monitor sugar intake through foods and drinks) and stickers, which allow the child to be rewarded for correctly tooth brushing or having successfully received a fluoride based covering (varnish) on their teeth.

SEM system identified	Participant narrative	Relevance to SEM	Relevance to social marketing communications
Micro-systems	I think with our parents, some of them have got such poor dental hygiene themselves, we need to start educating them (Preschool/Nursery, North)	Individual and their social group's sense of self-identity affected participants' oral health	Dental practices need to recognize client fears and encourage healthy behaviours among parents, who will then socialize their own children
Meso-systems	... and they've got other problems, so oral health seems maybe like [...] it is low down in their estimations (DHSW and EDDN1, West)	The social structures that represent and provide oral health services	Children's non-attendance at dental services attributable to: dental visits in response to pain rather than preventive care, with decay happening 'all of a sudden'; lack of motivation in part linked to competing parental priorities among vulnerable families; and lack of cultural awareness of importance of tooth brushing/oral health
Macro-system	Commenting on a child with an abscess: ... of course, you would go up there [dentist surgery], waiting until the doors open. But, even that is not a priority for them, because their priority was, "I got a crap sleep last night", they are not thinking, "My poor child's in pain with an abscess" so priorities are [different] (DHSW and EDDN2, West)		Narratives reflected Amin and Harrison's (2009) recognition of low expectations among the socio-economically deprived Subtle indications of negative perceptions towards the socio-economically deprived, reflective of Kelly <i>et al.</i> 's (2005) research
Exo-systems	It is going into the dentist, getting people to actually attend, make appointments and actually go there, and it is cultural, it is going to take a long time to shift it (Public Health Nurse/Health Visitor, North)	Participants' cultural context affecting oral health	Recognition that oral health is not culturally important in contrast to wider challenges of coping with disadvantage
	It is your grandmothers and your great grans you have got to get through to, I have had patients coming in and it is like you are speaking to the wife, but the wife speaks to the husband and then the husband speaks to the gran, so it really is the grandparents you have got to speak to, especially within that sort of community (DHSWs and EDDNs, West)	Community's influence on participants' oral health and macro-systems, the participants' cultural context that affected oral health	Parents often felt disempowered in resisting wider family pressures to allow their children high sugar foods. Partially affected by low education levels regarding oral health

**Table VII.**  
Focus group findings – oral health workers and other professionals working with young children and families

Marketing communication materials were also delivered and administrated by Childsmile related professionals through nursery and primary school orientated programmes. This engagement with children via their nurseries and schools, and indirectly their wider community, was described by the Childsmile interviewees as highly effective in delivering oral health. The Childsmile related professionals were trusted and the school represented a nurturing, neutral space for the message to be heard, trusted and acted on.

*Efficiency* – were time, money and resources used to maximum effect in Childsmile’s marketing communications? Childsmile’s vision was to improve oral health among young children in Scotland, with an emphasis on socio-economic deprived communities. While Childsmile’s marketing communications can only be fully assessed within the context of wider Childsmile results, an efficiency review of Childsmile’s marketing communications can be attempted.

Nurseries, schools and dental practices extensive use of marketing communication tools encouraging positive oral health, such as tooth brushing sessions, is likely to be a cost effective means of achieving Childsmile’s vision and objectives. Cost effective in terms of providing a health intervention that encourages positive health behaviour changes that may reduce future oral health problems. Perhaps the most efficient aspects of Childsmile’s marketing communications appears to be the greater co-operation between oral health professionals achieved through coordination in jointly delivering Childsmile’s marketing communications.

Yet this reliance on health professionals to deliver Childsmile’s marketing communication message is problematic. A central aspect of Childsmile’s marketing communications was the reliance on Health Visitors (HV) in liaising between families and oral health care professionals. The extent to which this method of communication has increased uptake from Childsmile’s target groups is uncertain. During Childsmile’s initial demonstration phase (July 2006 to December 2009) 22,684 children were referred to a DHSW, 18,227 children subsequently had an appointment made with a dental practice and 15,310 attended an appointment (Kidd, 2012). However, this trajectory may be influenced by multiple issues.

*Equity* – did the promotion have sufficient resources equal to the target audience needs? A number of factors impacted on the intended delivery of the initial Childsmile’s communications strategy, with a much more limited set of activities implemented than drawn out in the strategic plans (Moore *et al.*, 2010).

First, the evolving nature of the programme and the changing external context in which it operates necessitated an early review and modification of planned communications activities. Several planned activities were deemed no longer relevant, while others would benefit from re-scheduling owing to programme mainstreaming. To illustrate, by the end of 2010, it became evident that Childsmile delivery within dental practices would be mainstreamed via changes to the national payment system for dental practices across Scotland. This government-led (and Childsmile driven) change meant that practices, rather than “signing up” to Childsmile, were automatically required to deliver in accordance with its guidance. This led to a decision to postpone proposed activity aimed at engaging dental practices and instead to produce resources to communicate new expectations to dental practices and support delivery.

Second, a changing economic climate and the time taken awaiting approval for Childsmile marketing communication expenditure from the Scottish Executive witnessed the postponement of several activities intended within the 2010-2012 communications strategy. Two examples of community programmes which have not yet been implemented as originally planned are: a proposed touring road show, targeted at pregnant women and children under the age of four, and the establishment of community partnerships and champions: for example, targeting libraries, local bookshops and supermarkets, based in targeted communities, which would then run Childsmile related activities, such as dedicated story-telling sessions. Consequently, the resulting communication activities appeared to be top-down, with little encouragement towards forming community alliances to deliver oral health, as prescribed by Oetzel *et al.* (2006). The postponement then of these communication activities suggests that equity was not achieved.

### Discussion

The premise of this paper was to assess the role of the SEM through three inter-related questions applied to Childsmile's marketing communications.

Question 1 asked "To what extent can institutions' involvement in developing social marketing communications influence behaviour changes to reduce the health status gap between different socio-economic groups?". Childsmile and the institutions they collaborated with are identifiable with the SEM's mesosystems (such as social structures, laws and policies). Involving various stakeholder institutions appears to be central to delivering a coherent and relevant marketing communications that delivered behaviour change. Certainly, initial evaluation results indicate an increased uptake of dental services and improving oral health, even though certain target audiences remained unmotivated to access appropriate health services. Supporting dental practices through appropriate marketing communication materials appear to have contributed towards improving oral health figures. However, these interventions, while designed to address individuals' concerns inherently represent a top-down effect. However, the involvement of nurseries and schools within the Childsmile programme, including distributing appropriate marketing communication materials to children, is reflective of aspects of Coker *et al.*'s (2002) bottom-up effects in providing social support. Indeed, institutions such as nurseries, schools and the Childsmile DHSWs and Dental Nurses that work with them, were instrumental in building oral health confidence in parents. This approach develops further Blinkhorn *et al.*'s (2011) observation regarding children's oral health and parent's knowledge gaps.

Yet the importance of institutions within the SEM for Childsmile appears to be secondary to the role of community. Nurseries and schools, an aspect of any community, appeared to represent a cross-over, an intersection between top-down and bottom-up effects, perhaps contributing towards Childsmile's marketing communications impact. Consequently, nurseries and schools represented a trusted information source, within the community that Childsmile, parents and the wider community engaged through and with each other. In this respect, we would argue that educational establishments undertook a variety of roles within Childsmile's SEM, including helping to achieve collective efficacy – exosystems (Cohen *et al.*, 2006) – and encouraging change within the local cultural context – macrosystems.

Future SEM social marketing campaigns then should focus their efforts on identifying the central nexus that links institutions to their target audience, such as nurseries and schools. This identification process may then lead to greater marketing communications receptivity among target audiences in delivering behaviour change.

The second question posed was “How are social, institutional, and policy inter-related influences that affect health related behaviours incorporated into social marketing communications?”. From a social perspective, social marketing programmes and the application of the SEM have been criticised for their failure to consider the environment’s influence on individual’s behaviour (Glanz *et al.*, 2008). By applying the SEM to Childsmile, we identified how the various systems within the SEM affected children’s oral health. Childsmile’s marketing communications were dependent on support from various stakeholders, tacit knowledge from similar programmes, and extensive marketing research. The merits of using SEM drew on identifying the systems and in the effective collection and analysis of the data, from document and publication research and interviews establishing ‘real life’ issues that supported their marketing communications.

Our findings endorse the need for closer collaboration between social, institutional, and policy approaches. Indeed, while Scottish Government policy called for improvements to children’s oral health, this was also reflective of the structural barriers that existed within the communities Childsmile’s marketing communications were attempting to reach. Indeed, Childsmile’s marketing communication materials were designed to address these structural barriers (identified through focus groups), effectively challenging the community social norms. Social marketers applying the SEM should therefore consider the need for extensive and wider communication between social, institutional, and policy interests.

The third question asked “By applying a SEM to health orientated social marketing communications, how can empowerment, equity, inclusion, respect and social justice be achieved?”. Empowering socio-economic deprived groups to change their behaviour was a central tenet of Childsmile’s marketing communications as behaviour change is only possible if individuals and their communities understand their behaviours. This was achieved through identifying and involving a range of stakeholders in the empowerment process, including, parents/children and dental practices, health professionals and educationists. This recognition suggests that coordinated communications concepts that understand the environmental needs of the target audience, and deliver appropriate marketing communications through “life-contact points” (Lefebvre and Flora, 1988) can achieve clarity and relevance.

Perhaps most important was the issue of health literacy being compromised by socio-economic conditions. While Nutbeam (2000) and Kickbusch *et al.* (2008) note how health illiteracy affects healthy behaviours, the findings of the communications needs assessment undertaken on behalf of Childsmile indicated a willingness among the parental target audience to improve their children’s health. In this instance, marketing communications focussed on providing suitable materials to support health professionals in gaining trust from the community, allowing the oral health message to be heard; a finding that develops further Kelly *et al.*’s (2005) observations regarding parents mistaken oral health beliefs and perceived low importance of primary teeth.

This paper, however, is not without its limitations. Perhaps the most noteworthy is the inability to evaluate the impact of the full marketing communication strategy as



originally developed to support the Childsmile programme. At present, a more limited amount of communication activity has been delivered than set out within this strategy (Moore *et al.*, 2010). This is compounded by the reality that, while Childsmile's monitoring provides an indication of programme roll-out and uptake, understanding the relationship between Childsmile activities and improvements in children's oral health requires further longitudinal follow-up. In addition, it is not possible to completely isolate the impact of Childsmile's marketing communications campaign from other activity within and outwith the wider Childsmile programme. Childsmile's marketing communications was an aspect of a wider health programme, and it was not envisaged would be evaluated as a separate entity from the wider programme.

Finally, our findings were dependent on the quality of the data that was gathered to identify these environmental influences. For example, due to resource constraints, the use of focus groups, while providing rich data, was not complemented by additional individual interviews which may have identified further insights. In addition, we were only able to interview two of the five people involved in the development of Childsmile's social marketing campaign, with the remaining people employed in other NHS posts or on maternity leave.

### Conclusion

The aim of this paper was to investigate and explore how a SEM of social marketing communications could be used to deliver behaviour change. By identifying the need for SEM systems to be addressed and incorporated in the campaign, we showed how various personal influences, along with economic, environmental and social influences need to be considered. This is particularly important among socio-economic deprived groups who may suffer from low levels of health literacy (Nielsen-Bohlman *et al.*, 2004; Nutbeam, 2000) and are harder to engage with through appropriate "life path points" (Lefebvre and Flora, 1988).

Through identifying these intervening variables, Childsmile developed a social marketing communications campaign that was implicitly designed to bring about behaviour change. However, our paper illustrates the impact of the changing environmental context that well developed social marketing communication campaigns exist within. Although Childsmile undertook extensive data gathering exercises to inform its marketing communications, the realities of economic and political pressures restricted what could actually be delivered. This highlights the importance of understanding, and responding to, the interacting SEM influences and stakeholder perspectives in delivering behaviour change.

Nonetheless our paper supports the potential for well planned social marketing interventions to overcome environmental forces that can lead to positive behaviour change. Future research should explore in greater depth individual aspects of the SEM systems and their influence on social marketing interventions. Increased understanding of how these systems influence behaviours will ultimately support the delivery of more effective social marketing campaigns.

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**Further reading**

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**Appendix***Focus group topic guide – Parents' topic guide***Introduction***Theme 1: Early-years health services*

- Range of general health care services related to young children in this area.
- Ways in which parents/carers hear about them.
- Member of the family/household likely to take the child/ensure the child attends.
- Factors and issues that help and hinder attendance.

*Theme 2: Dental care awareness*

- Respondents' practice and perceived importance of routine oral care/toothbrushing.
- Experiences and issues in registering with a dentist.
- Dietary issues and perceived relevance to oral care/general health.
- Key sources of information and opinion formers regarding oral care.

*Theme 3: Awareness of services and understanding of the Childsmile programme*

- Awareness of any local services for young children relating to oral health (establish context *vis. a vis.* Childsmile).
- Explore awareness and response to key elements: Childsmile Practice elements (e.g. services, materials, recruitment, registration). Childsmile Nurseries and Schools elements (three to eight year olds) (e.g. activities, materials, perceived children's responses).

*Theme 4: Experiences and responses to other oral health and other child related social marketing campaigns and services*

- Response to health communications in general (e.g. channels, messages, sources, likely response).
- Response to Childsmile promotional/informational materials (e.g. understanding of topics, routes, tone, formats, volume, language, additional non-print resources).
- Response to other campaigns to explore alternative channels and formats for communicating with parents/children (e.g. personalised calendar, play items, web sites, mobile vans, incentives, events/activity days).
- Additional service factors to enhance engagement and on-going participation (e.g. practical support, location).

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**About the author**

Andrew Lindridge's research focuses on the tensions surrounding the themes of socio-economic deprivation, trauma, culture and ethnicity, and how these manifest within consumption. This research interest is at both a national and international perspective involving research in a number of countries including China, India, Hong Kong, Malaysia, Taiwan, the UK and the USA. Andrew's work has appeared in a variety of refereed journals and his research has been presented to global audiences at a variety of European and North American conferences. Andrew Lindridge is the corresponding author and can be contacted at: [a.m.lindridge@open.ac.uk](mailto:a.m.lindridge@open.ac.uk)

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