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Promoting obesity prevention together with environmental sustainability

HELEN SKOUTERIS[1]*, RACHAEL COX[1], TERRY HUANG[2], LEONIE RUTHERFORD[3], SUSAN EDWARDS[4] and AMY CUTTER-MACKENZIE[5]

[1]*School of Psychology, Deakin University, 221 Burwood Highway, Burwood, VIC, Australia,* [2]*University of Nebraska Medical Center, Omaha, NE, USA,* [3]*School of Communication and Creative Arts, Deakin University, Deakin, VIC, Australia,* [4]*Faculty of Education, Australian Catholic University, East Melbourne, VIC, Australia and* [5]*School of Education, Southern Cross University, Lismore, NSW, Australia*

**Corresponding author. E-mail: helen.skouteris@deakin.edu.au*

SUMMARY

There is mounting evidence that current food production, transport, land use and urban design negatively impact both climate change and obesity outcomes. Recommendations to prevent climate change provide an opportunity to improve environmental outcomes and alter our food and physical activity environments in favour of a 'healthier' energy balance. Hence, setting goals to achieve a more sustainable society offers a unique opportunity to reduce levels of obesity. In the case of children, this approach is supported with evidence that even from a young age they show emerging understandings of complex environmental issues and are capable of both internalizing positive environmental values and influencing their own environmental outcomes. Given young children's high levels of environmental awareness, it is easy to see how environmental sustainability messages may help educate and motivate children to make 'healthier' choices. The purpose of this paper is to highlight a new approach to tackling childhood obesity by tapping into existing social movements, such as environmental sustainability, in order to increase children's motivation for healthy eating and physical activity behaviours and thus foster more wholesome communities. We contend that a social marketing framework may be a particularly useful tool to foster behaviour change beneficial to both personal and environmental health by increasing perceived benefits and reducing perceived costs of behaviour change. Consequently, we propose a new framework which highlights suggested pathways for helping children initiate and sustain 'healthier' behaviours in order to inform future research and potentially childhood obesity intervention strategies.

Key words: social marketing; obesity prevention; environmental sustainability; children

Globally, the rates of childhood obesity have increased at an alarming rate and child overweight has become a major public health concern (World Health Organization, 2011). There is no single cause of childhood obesity. Instead, at any life stage, obesity is considered a multifaceted, complex health issue resulting from a combination of genetic, environmental and sociological influences. Current obesity interventions typically focus on altering physical activity and dietary behaviours. Unfortunately, these approaches have generally had moderate effects and thus in recent times researchers have begun to suggest that overcoming obesity

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requires a completely new approach (Robinson and Sirard, 2005; Huang, 2009). Consequently, it has been proposed that cross-disciplinary solutions are needed in order to address this epidemic. One example of such an approach is to combine messages of obesity prevention with environmental sustainability.[1] There is mounting evidence which suggests that current food production, transport, land use and urban design negatively impact both global warming/climate change and obesity outcomes (Huang, 2009; Reisch and Gwordz, 2011). Recommendations to prevent climate change provide an opportunity to not only improve environmental outcomes but alter our food and physical activity environments in favour of a 'healthier' energy balance (Egger, 2007), i.e. balancing the quantity (and quality) of food consumed with sufficient physical activity. Setting goals to achieve a more sustainable society offers a unique opportunity to reduce levels of obesity. Robinson [(Robinson, 2010), p. S17] agrees, and suggests 'an alternative solution-oriented approach is to identify existing social and ideological movements that share behavioural goals with those for obesity prevention'. He proposes that 'it may be possible to integrate efforts to control obesity with participation in social movements that are already proving to be highly motivating to different segments of the population'. Examples offered by Robinson (Robinson, 2010) include environmental sustainability groups, animal protection groups and youth violence and crime protection programmes, amongst others. The basic principle behind this idea is that individuals will be motivated to make positive behaviour changes, not to improve their health outcomes but because the changes fit with the goals of the chosen movement.

Although there are a number of possible 'movements' to choose from (i.e. anti-consumerism, anti-globalization, etc.), the evident links between behaviours that protect the environment and behaviours that prevent obesity make environmental sustainability and climate change a likely candidate (see Table 1). For instance, an individual may ride his or her bicycle to work in order to reduce his or her 'carbon footprint'. Their motivation for doing this stems from wanting to support an environmental cause; however, riding to work has substantial health benefits, such as reduced risk of a number of life-threatening conditions, including cardiovascular disease, Type 2 diabetes, cancers, respiratory and musculoskeletal problems and kidney disease (Healthy Weight 2008, 2003).

Current approaches to behaviour change (i.e. improving one's health) are based on the assumption that people will weigh up anticipated costs and benefits and act rationally, focusing on their own best interests (Robinson, 2010). However, research across fields (social and cognitive psychology, behavioural economics) indicates that our decision-making and consequent behaviour are far from rational; instead, they are influenced by cognitive biases and contextual factors (Kahneman, 2003). For example, the well-documented *status quo* bias indicates that when 'the properties of alternative options are evaluated as advantages or disadvantages relative to the current situation, the disadvantages of the alternatives loom larger than their advantages' [(Kahneman 2003), p. 10]. This suggests that when people are considering the implications for their future health and well-being, the cost of behaviour change is high, thus explaining why (in the case of obesity), people do not appear to be enacting behaviours 'for their own good'. Robinson's idea of a 'stealth' intervention may help overcome this inherent human nature, linking obesity prevention with environmental sustainability presents an opportunity for designing such an intervention. That is, behaviour change is difficult because people discount future benefits of healthy actions in favour of more immediate gains from less healthy ones; this is part of the irrationality in human decision-making. Stealth interventions have the potential to induce behaviour change covertly, where people engage in the desired behaviours for reasons other than health. We argue that the heightened social desirability to be environmentally friendly may serve as a vehicle for such stealth interventions.

[1] In 0.37 seconds a simple Google search reveals 18,600,000 possible definitions for sustainability. Cutter-Mackenzie (2010, p. 351) defines one aspect of sustainability as '*environmental sustainability* (that) promotes a radical and transformative world-view where ecological considerations set the parameters of acceptable human endeavour. This ecocentric perspective is said to value the environment for 'its own sake' (see Eckersley, 1992; O'Riordan, 1981). For the purpose of this paper, we utilise this concept of environmental sustainability.

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Table 1: Overlapping behaviours of environmental sustainability and obesity prevention

Behaviour	Environmental impact	Health impact
Use alternative transportation, i.e. less car use, more cycling/walking	Reduced carbon emissions, improved air quality	Increased physical activity → increased personal energy expenditure
Eat locally, i.e. eat less foods that have been transported over long distances	Reduction in food miles due to lower transportation → reduced carbon emissions	Increased access to fresh produce
Eat more fruit and vegetables, less meat	Reduction in grain feed and livestock production Less processed and packaged foods → waste reduction	Increased access to more healthful foods
Reduced intake of sugar sweetened beverages	Fewer bottles and cans → waste reduction Fewer transportation miles → reduced carbon emissions	Reduced intake of obesogenic foods
Eat less processed and packaged foods	Less packaging → waste reduction Fewer transportation miles → reduced carbon emissions Reduced use of energy and water to produce food	Reduced intake of obesogenic foods
Replace passive entertainment (e.g. TV, electronic games) with more active leisure activities (i.e. riding a bike)	Reduction in use of non-renewable energy → reduced carbon emissions	Increased physical activity → increased personal energy expenditure

In the case of children, this approach is supported further with evidence that Australian children's participation in environmental education programmes is on the rise (Cutter-Mackenzie, 2010a,b; Davis, 2010). Furthermore, even very young children show emerging understandings of complex environmental issues and are capable of both internalizing positive environmental values and influencing their own environmental outcomes (Hägglund and Pramling Samuelsson, 2009; Skouteris *et al*., 2010). Given young children's high levels of environmental awareness, it is easy to see how environmental sustainability messages may help educate and motivate children to make 'healthier' exercise and food choices. For example, encouraging children to replace passive entertainment that uses non-renewable energy (e.g. TV, electronic games) with more active leisure activities (i.e. riding a bike, working in a vegetable garden) provides opportunities for decreasing obesity risk factors whilst increasing positive environmental sustainability behaviours. Educating children about the environmental costs associated with producing energy-dense, processed foods (e.g. McDonalds) compared with less energy-dense, unprocessed foods (e.g. fruits and vegetables) (Egger, 2007) also aligns the benefits of environmental education with obesity prevention. Both of these examples give an idea of how improvements can be made not only in terms of sustainability but potentially to children's physical activity and dietary behaviours.

Robinson (Robinson, 2010) proposes a number of reasons why participation in a social movement can enhance the perceived benefits of behaviour change and thus help individuals initiate changes that are beneficial not only to their individual health but also to the health of the environment. First, there is a large body of literature which suggests that identity formation plays a critical role in both recruitment and ongoing participation in a social movement. Identity formation motivates and sustains behaviour change in two ways: (i) it exerts pressure to act in a way that is consistent with one's perceived self-identity, that is to behave according to one's own morals and values and (ii) it exerts pressure to behave consistently with other group members (collective identity) and other members of the public (public identity) (Robinson, 2010). Secondly, participation in social movements gives individuals an opportunity for: (i) social network development, (ii) peer interaction, (iii) exposure to appropriate social models that embody the 'idealized' behaviours and (iv) social support throughout the behaviour change process (Robinson, 2010). Finally, Robinson argues that targeting young children may be particularly useful for obesity

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prevention (and improved sustainability) not only because they are still in the process of forming their own self-identity, but because adopting such values at an early age will have a greater impact over their lifetime. This is particularly so for children, who are understood to be receptive to learning about environmental sustainability (Pramling Samuelesson and Kaga, 2008). This case has been well made in the literature about environmental education in early childhood and often provides the justification for sustainability education in early learning (Cutter-Mackenzie and Edwards, 2006; Davis, 2009; Siraj-Blatchford, 2009; Cutter-Mackenzie, 2010b).

The purpose of this paper is to build on recent commentaries by Robinson (Robinson, 2010), Huang (Huang, 2009) and Elliot (Elliot, 2010) on tapping into the existing environmental sustainability social movement to increase children's motivation for healthy eating and physical activity behaviours, and illustrate how these ideas can be implemented in practice. We contend that a social marketing approach can be a powerful framework to foster 'wholesome communities', where both individual and environmental health are simultaneously addressed.

HOW CAN SOCIAL MARKETING BE AN EFFECTIVE FRAMEWORK FOR PROMOTING WHOLESOME COMMUNITIES?

Researchers have asked whether successful commercial marketing techniques can be used to promote ideas and attitudes as well as socially beneficial causes and behaviours, rather than just sell products (Kotler and Zaltman, 1971; Evans, 2008). This approach is termed 'social marketing' and is best defined as 'the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programmes designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of society' [(Andreasen, 1995), p. 7]. There are four key features of social marketing: (i) behaviour change is *voluntary*; (ii) emphasis is placed on the principle of *exchange*, that is, in order for change to occur an individual must recognize a clear benefit; (iii) a number of marketing techniques, including segmentation theory and consumer-oriented market research, are used and (iv) the aim of social marketing is to benefit individuals and society, not the marketer (Stead *et al.*, 2007a). It is this last feature which distinguishes this approach from marketing in the commercial sector.

There is an increasing body of research which shows that social marketing is highly effective in resolving social and health problems. Indeed a number of recent systematic reviews have found that social marketing campaigns can result in both positive changes or prevent negative changes in health-related behaviours across large populations (Gordon *et al.*, 2006; Stead *et al.*, 2007b; Evans, 2008; Wakefield *et al.*, 2010). The conclusions drawn from these reviews was that well designed, social marketing interventions provide a promising framework for improving various health-risk behaviours across a range of different target groups. This includes behaviours such as the use of tobacco, alcohol and other drugs, heart disease risk factors, sex-related behaviours, road safety, cancer screening and prevention, child survival and organ or blood donation. Although the long-term sustainability of such interventions varied across studies, some displayed positive effects up to 2 years after the intervention was first implemented (Stead *et al.*, 2007b; Wakefield *et al.*, 2010).

One example of a successful social marketing campaign with children is the Center for Disease Control and Prevention's VERB campaign. The aim of the VERB campaign was to encourage children (9–13 years) to undertake daily physical activity (Huhman *et al.*, 2010). The VERB campaign used a range of commercial marketing techniques to deliver positive physical activity messages, including *mass media marketing* (the campaign surrounded children with physical activity messages from multiple sources: TV, print media, radio, internet, school and community promotions), *social modelling* (peer models portrayed physical activity as 'social', 'fun' and 'cool') and *branding* (a branding strategy was developed to 'sell' physical activity to children). Other marketing techniques employed included *co-branding* (with other popular children's brands, such as Disney, Nickelodeon, Cartoon Network), *product endorsement* (VERB used known cartoon characters, athletes and TV stars to promote physical activity) and *premium offers* (promotional materials such as tattoos, balls and Frisbees branded with the VERB logo were given to

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children during campaign events) (Asbury *et al.*, 2008). VERB ran marketing campaigns over a 4-year period (2002–06) (Huhman *et al.*, 2010). A recent evaluation of the VERB campaign found it positively influenced children's physical activity outcomes (Huhman *et al.*, 2010).

Historically, health-related problems have dominated the social marketing agenda; however, social marketing campaigns are increasingly targeting behaviours related to environmental sustainability. One example is an Australian social marketing campaign called TravelSmart. TravelSmart encouraged Australians to use alternatives to travelling in a car, i.e. walking, cycling, catching public transport or substituting travel by working from home (Department of the Environment and Heritage, 2005). The TravelSmart campaign used a variety of commercial marketing techniques to convey positive sustainability messages, including *mass media marketing* (the campaign surrounded people with TravelSmart messages from multiple sources: TV, print media, radio, internet, school and community promotions), *marketing segmentation* (households interested in cycling were provided with free cycling route maps and other information to make cycling more accessible and practical) and *exchange* (the campaign helped build individual self-efficacy in relation to reducing environmental impact). An evaluation of TravelSmart revealed that household use of cars decreased by up to 15% following the campaign (Department of the Environment and Heritage, 2005).

Hence, the examples above show that social marketing can be used effectively to drive popular demand for political action; we see this through election campaigns, such as when voters are persuaded based on the advertisements they see. So, even if social marketing does not lead directly to behaviour change, it can create the appropriate climate and conditions for policy action that, in turn, may make it easier for behaviour change.

It 'is possible that the prevalence of successful social marketing campaigns is growing because they present a number of ways of reducing barriers to widespread behavior change:

(i) Social marketing campaigns can reduce political barriers to and create the demand for policy change. There is widespread agreement that the commercial drivers of increased energy intake and sedentary behaviors are so influential, that political leadership is required to intervene (Swinburn, 2008). This would include strategies such as the development of new policies and regulations which support making 'healthy' choices easier and more accessible. Unfortunately, unlike other health concerns such as smoking and road injuries, where governments have established laws and regulations that require people to behave in a particular way, it is much more difficult to establish similar political change with behaviours such as diet and physical activity (Swinburn, 2008). Instead, all projected laws and regulations are aimed at the societal level (making healthy options easy and accessible) rather than at individuals (Swinburn, 2008). One example, would be introducing regulations to reduce food and beverage marketing to children. Social marketing campaigns offer an opportunity to overcome this issue because they can target individual behaviour change. This is not to say government policy changes/regulation is not a priority, political will is something that needs to be considered with any approach to tackling childhood obesity that involves strategic policy changes and development (Swinburn, 2008). Rather we advocate that government policies should be developed in conjunction with social marketing campaigns to ensure individual and societal level changes are achieved.

(ii) Mass media campaigns (which also utilize social media such as Facebook and Twitter) are more cost-effective when trying to reach large numbers of people than other methods of interpersonal communication (i.e. education provided through health-care centres) (Birch *et al.*, 2011). The use of web-based technologies is especially relevant given scarce public health resources relative to those from industry. Given that children's lives in the 21st century are permeated by media [TV, computers, internet, video games, audio media (i.e. MP3 players, iPods), iPhones/iPads and print media (i.e. magazines)], social marketing campaigns which utilize multiple media forms would be a cost-effective way of reaching the target audience (McGinnis *et al.*, 2006). Additional forms of social media (e.g. Facebook) also present a low-cost way of reaching and targeting parents and

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caregivers, a primary social force influencing young children's development (McGinnis *et al.*, 2006; Skouteris *et al.*, 2011).

(iii) Current information and education strategies may favour people from a higher socioeconomic status (higher literacy skills, more receptive to health messages, less likely to discount the future) (Swinburn, 2008). However, in the same way commercial marketers use market research to better understand their target audience, social marketing campaigns also utilize market research (Stead *et al.*, 2007a; Donovan and Henley, 2010). This allows the identification and prediction of behaviour, for example, children's attitudes and beliefs that might affect their behavioural response to health messages. A commercial marketing technique frequently used is market segmentation. Segmentation theory proposes that limiting marketing to a 'one size fits all' approach may not have the desired effect on all members of the population (Kolodinksy and Reynolds, 2009). Instead, it is suggested that marketing should be customized to meet the needs of different segments of the population. In the case of children's environmental and health behaviours, market segmentation strategies could also be used to identify sustainability, physical activity and dietary behaviours, media habits and psychological variables related to overweight status in different child populations. Based on similarities in responses, environmental and health messages could be designed to target specific groups of children and consequently more successfully communicate important sustainability and health messages. Although this approach would be more costly (financially), it would help overcome the problem of education-based approaches.

(iv) Whilst governmental changes to urban planning and transport policies may accomplish goals of increasing physical activity (i.e. creating opportunities for walking or cycling for transport), Swinburn argues 'there are likely to be much more powerful drivers of change – these include reducing congestion, reducing greenhouse gas emissions, increasing livability and reducing injuries' [(Swinburn, 2008), p. 216]. Swinburn (2008) points out that 'Obesity prevention measures in the built environment substantially overlap with these more potent drivers of change, and thus obesity prevention advocacy needs to be closely linked with the environmental, sustainability and livability movements' [(Swinburn, 2008), p. 216]. Given that current approaches to tackling both environmental sustainability and obesity on their own are very expensive (Swinburn, 2008), combining urban planning and transport policy change with health promotion messages would seem to be a more cost-effective way of improving outcomes related to both environmental sustainability and obesity and, as such, the development of wholesome communities.

Participatory social marketing for a new lifestyle

The outcome of social marketing campaigns is behaviour change (Andreasen, 1994). Social marketers contend that attempts to influence behaviour must start with an understanding of the 'customer' (the individuals with whom we want to initiate behaviour change). By focusing on the 'customer', social marketers can draw on their specific needs/wants in order to design interventions that will not only be highly motivating in initiating behaviour change but offer incentives to sustain behaviour change. In the case of children, it is hypothesized that helping them develop strong health and environmental values provide a window of opportunity to foster children's drives from within. Indeed, the term 'values' is best defined as underlying attitudinal or behavioural decisions that facilitate optimal living (Rohan, 2000). In the case of connecting environmental education with obesity prevention optimal living is construed as living in an 'environmentally responsible' way that gives rise to opportunities for being 'healthy'. Given that attitudes are developed early in life, especially those regarding the environment (Environment Protection Authority, 2003; Chawla and Cushing, 2007), social marketing campaigns could feasibly focus on fostering positive personal and social values around sustainability and health. Prioritizing these values will help young children develop value systems that they will carry throughout life in terms of environmental and personal health (Rohan, 2000).

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As with successful environmental education programmes, such values can be developed through a social marketing campaign that encourages 'active learning' (McMillan and Vasseur, 2010). According to Scheyvens (Scheyvens *et al*., 2008), an active learning approach not only increases children's interest levels and motivation but encourages critical thinking, problem solving and social skills. An active approach has been deemed successful because it (i) goes beyond just learning knowledge and facts and grounds learning in 'real-world' experiences; (ii) demonstrates links across topics areas; (iii) promotes responsibility and community connectedness; (iv) encourages application and evaluation of knowledge learnt and (v) involves children in the decision-making process (Russell and Burton, 2000; Hart, 2008). Consequently, children become motivated learners because this approach increases relevance and builds both responsibility and competence (Beairsto, 2009). Hence, if the goal of a social marketing campaign is to encourage environmentally responsible and 'healthy' behaviours, social marketing tools should be used to deliver and promote behaviour change messages that encourage learning through 'action' (Beairsto, 2009).

It is also important that individuals can easily identify 'What's in it for me?' This involves a campaign which (i) minimizes the costs of taking up the recommended behaviour(s) and (ii) maximizes the benefits of taking up the recommended behaviour(s) (Donovan and Henley, 2010), where benefits are not always tangible or rationally conjured. Similarly to commercial marketing, it is expected that if the message is engaging, the choice for action is both appealing and easy, and the message taps into the audience's desired state of being, it will capture children's interest and potentially influence their attitudes and subsequent behaviour. Hence, behaviours that encourage 'healthy' environmental and personal outcomes should initially present as 'appealing' and 'engaging' In the case of combined environmental and obesity prevention messages, this would involve making behaviours such as riding a bike or walking to the nearest shops (where possible), a more appealing choice (rather than driving a car), by making it simple, and achievable to build a lifestyle with environmental and personal health benefits.

CONCLUSION AND FUTURE DIRECTIONS

We encourage researchers to adopt a holistic approach to thinking about environmental sustainability and obesity prevention in order to foster more wholesome communities. Whilst we acknowledge that social marketing is obviously not the only way to do this, social marketing techniques offer a way to capitalize on the cultural psyche that mobilizes individuals to create change. This way of thinking holds the potential for helping children initiate and sustain environmental practices and understandings that are likely to support and generate 'healthier' personal behaviours. Using this way of thinking may result in data that can better inform intervention strategies aimed at supporting the uptake of sustainable living practices and the prevention of excessive weight gain in childhood. This is particularly so given research showing that children are capable of engaging with complex sustainability ideas and that early education is increasingly understood as an appropriate site for environmental education orientated towards changing personal and social behaviours.

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CONFLICT OF INTEREST

There is no conflict of interest to be declared.

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