

Engaging Australians on climate change: The role of education and communication in social change

Authors

Estelle Gaillard

Griffith School of Environment, Griffith University, Australia

Jo-Anne Ferreira

Griffith School of Environment, Griffith University, Australia

Contact Details

Estelle Gaillard

Griffith School of Environment,

Griffith University,

Nathan, QLD 4111

Australia

Abstract

This chapter reports on an Australian research project exploring social diffusion theory as a theory of social change to gain a better understanding of the role of education and communication in assisting this change process. The research examines Al Gore's Climate Change Leadership Program, in partnership with the Australian Conservation Foundation (ACF) and assesses the effectiveness of the social diffusion model that underpins this educational outreach in encouraging and empowering individuals to take individual and collective action to address climate change. Initial findings of this research show that education and communication initiatives are more successful when they promote processes of learning that engage individuals in their social contexts in order to assist both individual and social change.

Keywords

Education, communication, climate change, social diffusion, social learning, individual change, social change

Introduction

Addressing the major challenges posed by climate change¹ requires societal engagement on strategies for mitigation and adaptation. As researchers in the field of education for sustainability, we are interested in processes of learning for individual and societal transformation and how education and communication² can effectively engage people in sustainable solutions - through changing their own ways of thinking and behaviours as well as mobilising for broader social change.

This research explores how education and communication can promote individual and social learning in order to help bring about individual and social change towards sustainability. We look specifically at education and communication efforts that address climate change because climate change is a fundamental and pressing challenge facing the sustainability transition (IPCC 2007). This research is motivated by the assumption that effective education and communication have an important role to play in addressing climate change and in facilitating long-term changes towards sustainability. While environmental education and communication practices and activities are often directed to young people in formal settings, we have chosen efforts aimed at adults as the focus of our work. As Clover (1996: 97) argues, “[i]t is the adults of the world, as citizens, consumers, employers and parents, who make critical decisions on a daily basis that affect others and the biosphere everyday day”. It is adults who are “the force of social and political change in both domestic and global arenas” (Lipschutz 1996: 2)

In order to understand how an educational effort such as The Climate Project-Australia might influence individual and social change, we examine this program through the lens provided by social diffusion theory. Social diffusion theory explains how new ideas and practices spread through certain communication channels over

¹ The term climate change is used throughout this paper, and refers to the current or projected changes in climate, whether due to natural variability or to human activities (IPCC, 2001).

² In this paper, education and communication are inseparable processes that impact upon people’s thinking and actions. Since education and communication both deal with the transfer or exchange of ideas, information and skills in a two-way process, they inevitably shade into one another (Palmer, 1998). Both communication and education are needed if we are to successfully address the challenges posed by climate change.

time among the members of a social system (Rogers 2003: 5). This research focuses on the spread of new understandings of and solutions to climate change among individuals, communities and organisations; and the potential change outcomes of educational initiatives such as The Climate Project-Australia.

Learning for Climate Change

In order to understand the role of education and communication in encouraging and empowering people to respond to climate change, we examine in this section the literature around climate change; education, communication and social change; social diffusion theory; and the current context of climate change education and communication in Australia.

Sustainability and climate change

One of key challenges facing the achievement of a sustainable society is climate change (IPCC 2007). The Intergovernmental Panel on Climate Change (IPCC), the leading international body on climate change science, indicates that beyond natural variability in Earth's climate system, human activities are playing a significant role in causing present climate changes and those projected in the future (IPCC 2001; 2007).

In the past couple of years, the release of the 4th IPCC report, the Stern Report, Al Gore and the IPCC winning the Nobel Peace prize, the United Nations Climate Change Conference in Bali, intense media coverage of climate change, and responses to climate change from some state and local governments, businesses, industries, environmental and social advocacy groups as well as civil society, have placed the issue of climate change high on the global agenda. As a result, addressing the challenges posed by climate change is beginning to be recognised as urgent, not only in the environmental sphere but also in political, social and economic spheres (Lorenzoni & Pidgeon 2006).

The IPCC (2001) indicates that patterns of social relationships, cultures, political practices and economic institutions are not only part of the cause of climate change; they are also subject to its potential effects. The IPCC (2001) points out that changes

in governance, lifestyles, economic activity, technological advances, policies, pricing and regulation mechanisms are critical if we want to tackle climate change:

Social learning and innovation, and changes in institutional structure could contribute to climate change mitigation. Changes in collective rules and individual behaviours may have significant effects on greenhouse gas emissions but take place within complex institutional, regulatory and legal settings. (p.299)

As Gelbspan (2007) states, responding to the climate crisis must involve every segment of society working at every level of action. Stabilization of the Earth's climate requires large-scale government policies and programs along with international cooperation as well as major shifts in individual and collective thinking and behaviours (Leiserowitz 2007). While governments are crucial in setting priorities and policies (Moser 2006), education and communication efforts have a key role to play in empowering individuals to engage in individual, social and political actions to address the challenges posed by climate change.

Education, communication and social change

Some education and communication efforts tend to be individualistic (Padolsky 2006). They are based on the assumption that the transition towards sustainability can be made simply through individuals changing their personal practices. These education and communication efforts encourage individuals to take personal action on social and environmental issues by providing a list of suggestions on what individuals can do (Padolsky 2006). As Oskamp (2002) indicates, there are an increasing number of 'what you can do' lists in various locations such as internet sites, newspapers, and books. Such individualistic approaches assume that each individual can make a difference by taking small, day-to-day actions. While such actions appeal to the power of individuals to change, Maniates (2001) argues that these actions tend to lead to the individualization of responsibility for social and environmental issues. However, as Princen *et al.* (2002) state, the current socio-environmental crisis will not be countered by actions that are mainly individual and typically consumer-oriented such as planting trees, riding a bicycle, or recycling. Although these actions are commendable, they do not reflect the size and nature of the current global environmental and social issues (Clover & Hill 2003). Clover (2002) argues that a sole focus on 'individual' behaviours ignores the cultural, social, economic and

political structures that underlie the current socio-environmental crisis. Effective education and communication should, therefore, take into account the dynamics of socio-environmental issues originating in social, political and environmental attitudes, behaviours, actions, decision-making and policies (Hill 2003). Effective education and communication should expose people to exactly how their society operates and why, thereby allowing them to become fully involved in its transformation towards sustainability (Huckle 1993). Consequently, while education and communication efforts should encourage and empower individuals to make changes in their lifestyles, it is crucial that they also address the necessary changes to social, economic and political systems (Pearse 2007).

According to Fien (1993: 4), “the current environmental crisis is first and foremost a social crisis”. Thus, effective education and communication must be based upon the dynamic interdependence of individual and structural/social transformation (Fien 1993). It cannot be based upon changing individual values or lifestyles or through structural changes alone (Fien 1993). As Clover, Follen and Hall (1998) argue, in addition to individual change, education and communication must have a goal of collective social transformation. Clover (2003: 10) sees education as “an engaged and participatory process of political and social learning and not solely a matter of information transmission and individual change”. In the context of climate change, it is all the more important that education and communication programs seek to empower for individual change within a social or collective context. This is for four reasons. Firstly, it is important to acknowledge that individuals are limited in their actions by external barriers such as the lack of feasible alternative technology, public infrastructure or transportation choices (Moser 2006). As Tribbia (2007) indicates, an individual might not want to drive to work but unless public transport or safe bicycle lanes are available, she/he might have no other option but to drive. Secondly, people are heavily influenced by their social context (Rogers 2003; Bandura 1977). For example, the lack of action being taken by others might discourage individuals to act (Lorenzoni *et al.* 2007). Thirdly, individuals are often influenced by internal factors such a sense of isolation, lack of motivation or the lack of belief that their individual actions can make a difference (Kollmuss & Agyeman 2002). Fourthly, as Harriss (2007) states, climate change solutions will need to confront the dysfunctional practices in our social, governance and economic systems. Thus, education and

communication programs seeking to address the challenges posed by climate change must move from the simple transmission of information and facts, or from a sole individual focus, to learning processes that seek to empower individuals to transform themselves as members of a social group and in the process work towards achieving broader social change. Social diffusion theory offers one such strategy.

Social diffusion theory as a social learning process towards social change

Social diffusion theory is a theory of social change that illuminates the change process and how learning leads to change (Rogers 2003). It sees individuals as having a role to play in social change while fostering a sense of community/collective and building pressure for broader societal changes.

The doyen of social diffusion theory is Everett Rogers, a social scientist who studied over 1,500 innovations and their diffusion over the last three decades (Rabkins & Gershon 2007). Social diffusion theory has been used to study the spread of new ideas and practices for over 50 years in a wide variety of settings. Social diffusion theorists attempt to identify how new ideas, behaviours, values, technologies and products spread through populations. According to Rogers (2003: 6), social diffusion theory explains social change or “the process by which alteration occurs in the structure and function of a social system”. When new ideas, practices, or products are invented, diffused and adopted or rejected, social change occurs. However, Rogers acknowledges that change can also happen in other ways; for example, as result of a political revolution, a natural event or a government policy. Our interest in this research is, however, in the role of education and communication efforts in assisting ‘planned’ individual and social change.

However for Rogers (2003), how a social problem (such as climate change) is defined is an important determinant of how we go about solving it, and ultimately of the effectiveness of the attempted solutions. Some factors underlying a particular social problem may indeed be individual in nature. Effective solutions to the problem should, therefore, focus on changing these individual factors. In many other cases, however, the causes of a social problem lie in the larger context or system of which

the individual is a part. Rogers (2003) warns against overstressing individual-blame in defining a social problem and underestimating system-blame. As Kaplan (2000) states, solely 'individual' strategies might be inappropriate if macro conditions exist which are responsible for contributing to the issue or limiting the effectiveness of individual actions. Thus, Rogers emphasises the need to simultaneously address individual change and social and structural change.

Social diffusion theorists argue that individual actions undertaken collectively help to create a 'culture of possibility for everyone' (Rabkins & Gershon 2007: 302). This is because, as Milbrath (1989) argues, people's sense of the possibility of systemic change is influenced by the attitudes and behaviours of the people around them. Individual actions taken collectively can also build a 'grassroots groundswell' (Rabkins & Gershon 2007: 302). Or, as Suzuki (1999: 218) puts it, "each person, group or organization working towards a different world may seem powerless and insignificant, but all of them can add up to a force that can become irresistible".

Definition of social diffusion

In his book *Diffusion of Innovations*, Rogers (2003: 5) defines social diffusion as:

[t]he process by which an innovation is communicated through certain channels over time among the members of a social system.

This definition can be broken down into four key elements- innovation, communication channels, time, and social system. The following section offers a detailed account of each of these elements.

1. The innovation

An innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption (e.g. a group of individuals or an organisation). An innovation can take various forms. It may be tangible product, like an energy-saving compact fluorescent light bulb, or a new idea, practice or behavioural pattern. According to Rogers (2003), the characteristics or attributes of an innovation, as perceived by individuals, help explain their different rates of adoption. These attributes are: relative advantage, compatibility, complexity, triability and observability.

2. Communication channels

According to Rogers (2003), information exchange is at the heart of the social diffusion process. Such information exchanges occur, he argues, through communication channels. Communication channels are the means through which information moves from one individual to another. Communication channels include mass media channels, such as radio, television and newspapers; interpersonal channels that involve a face-to-face exchange between two or more individuals; and interactive communication channels, such as via the internet (Rogers 2003). Different communication channels are most effective at different times in the social diffusion process. As Moser and Dilling (2004) state, mass communication channels are the most efficient way for spreading information widely. However, more direct and personalised communication channels are required to persuade individuals to take specific actions.

3. Time: The innovation-decision process

According to Rogers (2003), the innovation-decision process is the process through which an individual (or other decision making unit) passes from first knowledge of an innovation (knowledge), to the formation of an attitude toward the innovation (persuasion), to a decision to adopt or reject the innovation (decision), to the implementation and use of the new idea (implementation), to confirmation of this decision (confirmation). A key insight in the innovation-decision process is that each stage of the innovation process requires different communication and education approaches in terms of the communication channels, how the communication is framed, who is communicating, to whom and the needs of targeted groups (Birney *et al.* 2006).

4. A social system

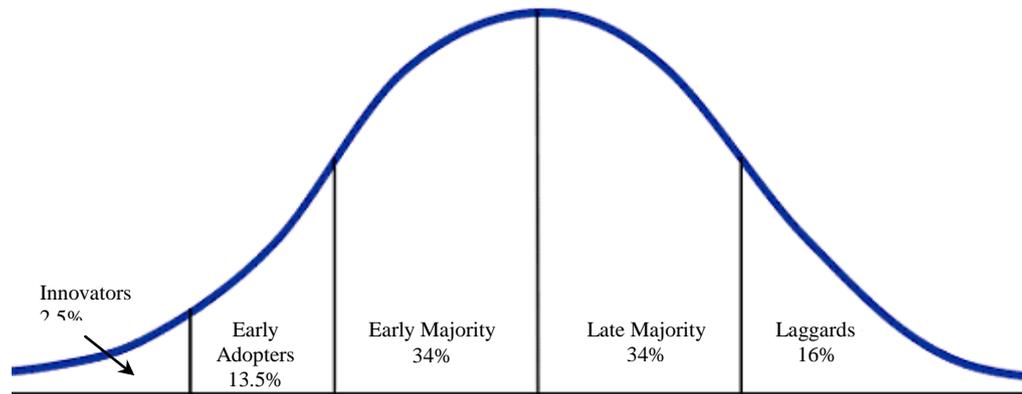
Social diffusion occurs within a social system, defined by Rogers (2003: 25) as “a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal”. The members of a social system may be individuals, informal groups, organizations or societies. A social system is also based upon a social structure. Lopez & Scott (2000) define a social structure as the patterns of causal interdependence and interconnection among the members of a system, their actions as well as their positions in the system. In addition to this formal structure, the communication flows

between a system's members, tracing who interacts with whom and under what circumstances, creates a communication structure (Rogers 2003). Social diffusion theorists' understandings of the nature of information flows from one individual to another is enhanced by the concepts of homophily and heterophily. Homophily is the degree to which two or more individuals who interact perceive themselves as similar in certain attributes such as beliefs, education, socio-economic status or interests (Rogers 2003). Homophily accelerates the diffusion process but it limits the spread of an innovation to those individuals who are already connected in a close network. In contrast, heterophily is the degree to which individuals who interact are different in certain attributes (Rogers 2003). Heterophily allows for a broader learning and diffusion of new ideas or innovations across diverse and different groups (Moser 2007). Ultimately, the social diffusion process requires a certain degree of both heterophily and homophily. In addition to social and communication structures, social norms guide individual behaviour by setting standards for socially acceptable behaviours (Stern 2000; Cialdini 2000). Social norms often discourage risk taking and the willingness to be the first to make a change (Johnston 2007). According to Rogers (2003), the social structure, the communication structure and social norms can all impede or facilitate the social diffusion process.

Adopter Categories: The Bell Curve

Individuals in a social system do not all adopt an innovation at the same time. Rogers (2003) states that adopters of any new innovation or idea could be classified in five categories: innovators, early adopters, early majority, late majority and laggards, based on a Bell Curve. Each adopter's willingness and ability to adopt an innovation depends on their awareness, interest, evaluation, and trial of the innovation (Rogers 2003).

Figure 1: The Bell Curve



Source: based on Rogers 2003: 281

Moser (2006) indicates that it is the typical pattern for innovators and early adopters to create the conditions for a majority of actors to eventually adopt new ideas, practices or technologies. Early adopters are key individuals who are attracted to the innovation and who have a high tolerance for experimentation (Rabkins & Gershon, 2007). As Rabkins & Gershon (2007) state a key element in social diffusion is the idea that influencing a few people may be a precursor to influencing many.

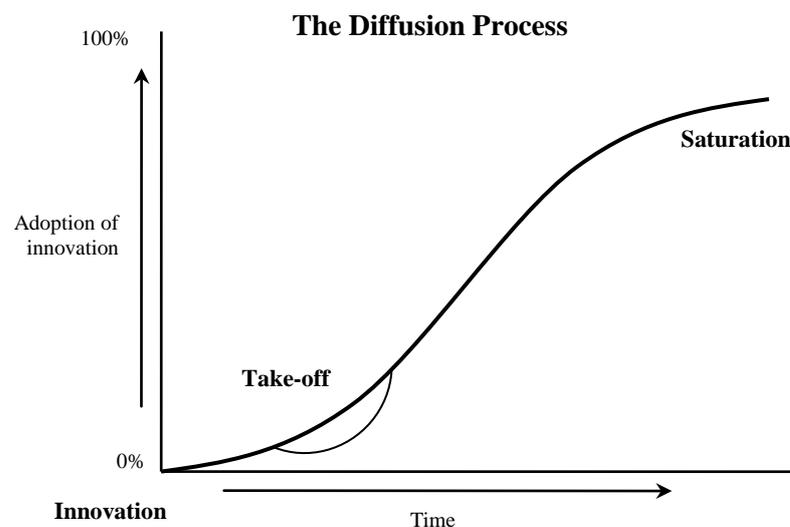
In addition to these five adopter categories, Rogers (2003) identifies two additional categories in the diffusion process: 'opinion leaders' and 'change agents'. Opinion leaders are members of a social system within which they are able to exert some influence. Change agents, in contrast, are individuals who actively and effectively promote new ideas and behaviours (Atkisson 1999). Their role is to develop a need for change among early adopters. Once early adopters have recognised a need for change, change agents seek to motivate interest in the innovation and create an intent to change in early adopters. Once this intent to change has been identified, then change agents seek to assist early adopters to translate their intentions into actions (Rogers 2003; Atkisson 1999). In this study, educators and communicators are seen as change agents.

The S-shaped innovation adoption curve and critical mass

According to Rogers (2003), the adoption of an innovation in any given population follows a certain pattern. Gladwell (2002) refers to the diffusion process as a social epidemic as new ideas, behaviours and products move through a population very

much as a disease does. An innovation starts with an innovator, often a single individual with an innovation. After its conception, an innovation spreads slowly at first - usually through the work of change agents, who actively promote it until it reaches the 'take-off' phase. At this stage, interpersonal networks become activated and start to spread an individual's subjective evaluations of an innovation from peer to peer in a system (Rogers 2003). As Ball (2005: 372) states, the key ingredient here is the effect that one person has on the other: 'the influence of interaction'. A critical mass (Rogers 2003) occurs when 10% to 20% of the population in a system has adopted an innovation. After reaching this point, sometimes referred to as 'tipping point' (Gladwell 2002), the innovation's further rate of adoption becomes self-sustaining. Critical mass bears on the relationship between individuals and the larger system of which they form a part. This stresses how individual's actions often depend on their perception of how many other individuals are thinking or behaving in a particular way (Cialdini 2000; Clayton & Brook 2005). After critical mass is reached, the norms of the social system encourage further adoption by remaining individuals within a system (Rogers 2003). Critical mass also puts pressure on decision makers to introduce policy and structural changes that will facilitate further diffusion and adoption. After reaching critical mass, the S-shaped curve eventually reaches a saturation level, where virtually everyone who is going to adopt the innovation has done so (Rogers 2003).

Figure 2: The S-shaped innovation adoption curve



Source: based on Rogers 2003: 11

Social diffusion as a process of social learning

The Bell Curve, the S-shaped curve and the concept of critical mass are crucial in understanding the social nature of the diffusion process. Social diffusion is driven by an underlying social learning process. As people interact with each other, pass information on to one another, discuss the innovation and share their experiences, social learning occurs (Bandura 1977). Social learning theory (Bandura 1977) considers that people learn from one another through observational learning, imitation, modelling and communication. According to Bandura (1977), individuals learn by observing and modelling the behaviours, attitudes, and emotional reactions of others. Allen (1988: 260) refers to this process as ‘watching while being watched’. Social learning theory is concerned with how the social environment influences an individual’s way of thinking and behaviours. As Serrano (1998) states, since individuals acquire knowledge and skills as well as form attitudes and values as they relate to one another and their environment, all learning is, therefore, social learning.

Climate change education and communication in Australia: The current context

In the past couple of years, public awareness of climate change has been growing quickly. The release of the Stern Report, Al Gore’s documentary *An Inconvenient Truth*, the 4th IPCC report and intense media coverage coinciding with higher average temperatures, altered rainfall patterns, Australia’s worst drought on record, intense bushfires, tropical cyclones Larry and Monica, have generated a broad national debate on climate change. Public opinion polls indicate a widespread and high level of awareness of and concern about climate change. For example, the latest BBC World Service poll, *Climate Change: Global Poll* (2007), indicated that 81% of Australians agreed that human activity was a significant cause of climate change. A vast majority (95%) endorsed taking action, including 70% who say major steps should be taken ‘very soon’ (BBC World Service 2007: 8-19).

Given the shift in public opinion, education and communication efforts should now move from an awareness-raising agenda (or trying to convince Australians that climate change is real) to encourage and empower Australians to change their own behaviours and to support collective action and policy changes. If we refer to social

diffusion theory, this means that these efforts should now be moving into the persuasion stage. In order to help move along the diffusion S-shaped curve towards critical mass (Rogers 2003), the current challenge for educators and communicators is to persuade a large number of Australians that they should individually and collectively engage with the issue of climate change and take action. As Gladwell (2002: 69) states:

For a social epidemic to start, some people are actually going to have to be persuaded to do something.

To achieve this goal, Moser (2007) suggests that educators and communicators must make climate change visible to individuals by better educating them on the causes, impacts and implications of climate change as well as making the issue relevant to them personally. In the persuasion stage, educators and communicators, as change agents, should also concentrate on 'how-to-knowledge' (Rogers 2003: 173) to help individuals translate their awareness and knowledge into action to combat climate change. As Moser (2007) states, to facilitate engagement efforts, educators and communicators must persuade individuals that practical solutions are available and that they can make a difference by adopting them.

According to social diffusion theory, at the persuasion stage, an individual seeks information about the new idea, decides what messages he or she regards as credible and decides how s/he interprets the information (Rogers 2003). It is at the persuasion stage that an individual develops his or her perception of the innovation (Rogers 2003). The individual wants to know what the advantages and disadvantages of the innovation are for his or her particular situation (Rogers 2003). Interpersonal communication networks with peers are particularly likely to convey such evaluative information about an innovation. Individuals tend to turn to their peers to confirm, debate, or obtain further details. As people interact with each other, pass information on to one another, discuss climate change solutions, and share their experiences, social learning occurs (Bandura 1977). Rogers (2003) indicates that information obtained from peers located in social and organizational networks has more weight than information obtained from the media or scientists. Individuals want to know whether their thinking is aligned with the ways of thinking and behaving of their peers (Rogers 2003; Goldstein & Cialdini 2007).

As Cialdini (2000) indicates, individuals often seek what he calls ‘social validation’ or ‘social proof’. If individuals see that many others, especially those perceived as similar, are taking action, they will be more willing to take action too (Cialdini 2000). This is especially important in the context of climate change. As studies on public views of climate change (e.g. Bulkeley 2000; Nicholson-Cole 2004; Lorenzoni *et al.* 2007; Downing & Ballantyne 2007) indicate, individuals often lack motivation for taking action or discount the effectiveness of their actions in tackling climate change because they see few other people engaging in climate change solutions. Thus, education and communication efforts must give individuals a sense that they can play an essential part in tackling climate change. They must convince individuals that their personal actions will make a difference as part of a larger collective who can together successfully tackle the issue (Moser & Dilling 2004). This is accurately summarised by David Suzuki:

If you don’t take your car to work one day, it is a drop in the bucket.
But if 400,000 people leave their car at home for one day a week, that
is huge. (Suzuki in Ambrose 2006, p.12)

As Moser and Dilling (2007) indicate, although such activities might be limited in actual emission reductions they can spread a symbolic message that engages others. Such efforts might also help to increase individuals’ sense of efficacy (the belief that one is capable of taking effective action) and create collective efficacy (the belief that together they are capable of taking effective action) (Bandura 2000). According to Bandura (2000) when people feel a strong sense of belief in their ability to act, they are more likely to try an innovation and adopt it long-term.

As social diffusion theory indicates, as more and more people decide to adopt climate change solutions, they develop common guidelines and create new social norms. Thus, the task of communication and education efforts is to show individuals that others are engaged and that new social norms are emerging (Cialdini 2000; Moser 2007). For example, Bardwell (1991) advocates using success stories of ordinary people to encourage others to take action. Sharing examples of individuals, communities or organisations acting on climate change can show others the possibilities for effective action that might be available to them. As Milbrath (1989) states seeing that some people are able to bring about change, even a small one, can

provide evidence that change is indeed possible. Therefore, it can be argued that education and communication efforts should create spaces for people to network, exchange information and ideas on climate change, discuss and evaluate potential solutions and actions available, and promote processes of learning that engage individuals in a social context.

In order to ‘widen the circle of the engaged’ (Moser 2007: 78) and penetrate every segment of society (Gelbspan 2007), it is also essential to widen the circle of educators and communicators beyond scientists and environmental advocates. More business and religious leaders, politicians, health practitioners, lawyers, engineers, architects and community leaders are beginning to speak out on climate change (see Gaillard 2008). These ‘new’ educators and communicators are key individuals who act as entry points into specific groups. As ‘peers’, they are often seen as credible, trustworthy and persuasive (Rogers 2003). They can tailor their communication strategies to their audiences’ specific needs, knowledge, concerns, motivation and sphere of influence. As Reardon (1991: 10), states “the greatest enemy of persuasion is assumption”; when motivating changes, “you must know what does matter to your audience, not what should matter to them”. Sharing similar situational contexts, interests, values or concerns, educators and communicators can help their peers understand what climate change means to them and how they can effectively respond to the issue in their particular contexts (Moser & Dilling, 2007).

Educators and communicators should also enlist the support of other individuals in the diffusion process. They should persuade and empower individuals, who are already engaged or receptive, to spread the word on climate change and climate change solutions, as the adoption of new ideas and behaviours frequently occurs as a result of friends, family members, colleagues or neighbours introducing them to their peers. The more people spread the word and talk to their peers and others, the more people will start to adopt new ideas and practices sending, clear messages to government and industry regarding citizen concerns and consumer preferences (Stern *et al.* 1999).

The study design

In order to understand how education and communication practitioners can use a social diffusion process in the current Australian context, this research study investigates the social diffusion model underpinning The Climate Project-Australia education program and its potential impact on audiences' understandings and perceptions of climate change as well as their willingness to undertake individual, social and political actions to tackle climate change. This section provides a brief overview of The Climate Project-Australia along with an outline of the research design for this study.

Brief overview of The Climate Project-Australia

The Climate Project-Australia seeks to spread the message of Al Gore's Oscar-winning documentary on climate change, *An Inconvenient Truth*. In late 2006, 84 Australians were personally trained by Al Gore to deliver versions of the documentary's slide show across Australia. In September 2007, an additional 170 Australians were trained using a more Australian version of the slide show called *An Australian Inconvenient Truth* (ACF 2008).

The Climate Project-Australia educational outreach draws heavily on social diffusion theory and peer education. It seeks to capitalise on presenters, from diverse social, professional and geographical backgrounds, as entry points in communities across Australia to spread the word on climate change (Gaillard 2008). After presenters learn how to utilise the Al Gore slide show, they return to their communities, workplaces and social groups and seek to engage as many people as possible in tackling climate change (Haag 2007). More than 70,000 Australians have attended The Climate Project-Australia slide show presentation since October 2006. By the end of September 2008, it is predicted that one in one hundred Australians will have attended a Climate Project-Australia presentation (ACF 2008). This is a cause for great optimism in terms of awareness and knowledge-raising. However, this research seeks to examine the outcomes of the program in light of the next stage in social diffusion theory, 'persuasion'; and to understand to what extent the program helps

attendees to individually and/or collectively engage with climate change and decide to take action.

Research Design

This research utilises a multi-method approach of observations, questionnaires and semi-structured interviews to collect both quantitative and qualitative data from audience members both before and after attending a Climate Project-Australia presentation. This approach allows for a broader exploration of the research themes and the triangulation of findings (Lowe *et al.* 2006). The research design is flexible and intentionally leaves the study open to changing events inside and outside the study, new ideas and our own learning during the course of this research (Nicholson-Cole 2004). This research follows ten presenters from The Climate Project-Australia and surveys their audience members at selected presentations. The presenters were selected based on their occupational sector and geographical location to both reflect a wide spectrum of society in the research and mirror The Climate Project-Australia's social diffusion model (Gaillard 2008).

To date, 12 presentations have been attended, 140 questionnaires completed, and 60 semi-interviews conducted. In this research, the observation process is based on attending presentations and monitoring the extent to which presenters customise the messages to their audiences; the visuals they use and the solutions they promote; and the verbal and non verbal responses of audience members (Gaillard 2008). At each presentation, audience members are invited to complete a two-part questionnaire. The first part is completed immediately before attending the presentation and the second part completed right after attending the presentation. The first part solicits basic demographic information (gender, age and occupation) and asks eight questions on motivation, perceptions, understanding of the causes and impacts of climate change, level of personal concern and actions already taken to reduce climate change. In addition to questions posed in part 1, part 2 contains a rating scale on several aspects of the presentation, self-reported changes in understandings of and level of concern about climate, intent to act as a result of attending the presentation, and a final open-ended question for respondents to share additional comments on the presentation and/or climate change (Gaillard 2008). Respondents who provide their contact details in the questionnaire are also invited to participate in semi-structured interviews about

four weeks after attending the presentation to discuss in more depth their experience of the Climate Project-Australia presentation they attended and their views, opinions and concerns on climate change. At this stage of the research, it is expected that participants will be re-interviewed about six months following the initial interview in order to ascertain whether changes that might have been reported after the presentation and during the initial interview have continued over time (Leiserowitz 2004). The second interview will also monitor if intentions to act expressed by respondents after the presentation have translated into actions and what might have assisted or hindered their change process (Gaillard 2008).

Initial findings

In this section, we present four main preliminary findings, based on the responses of presentation attendees on the questionnaire and during semi-structured interviews, in light of the two implications for climate change education and communication described earlier in this paper: ‘widening the circle of the engaged’ and ‘widening the circle of educators and communicators’.

1. Widening the circle of the engaged

Providing solutions

Initial findings show that although a reasonable number of presentation attendees claim to attend a presentation to learn more about the science behind climate change, the majority attend in the hope of finding out more about what they can do to tackle climate change or “do my bit” (respondent). This shows a clear demand from audiences for available and practical solutions (Gaillard 2008). When asked to rate the usefulness and relevance of solutions promoted in the presentation to them, the average response from presentation attendees was between “fair” and “good”. It is important to note, however, that audience members’ level of engagement with climate change prior to attending a presentation as well as their interest and needs vary significantly. This has significant implications on communicating solutions (Gaillard 2008).

Results from the questionnaires suggest that the majority of respondents already take some actions to lead more sustainable lives prior to attending a presentation.

Recycling, energy conservation at home, water saving and use of public transport are the most frequently mentioned (Gaillard 2008). Yet for some respondents “the presentation gave easy solutions to start the process of change” (respondent). This shows that some attendees are looking for additional practical ways in which they can make a difference or “to learn how to further make improvements to a climate aware lifestyle” (respondent). Some respondents indicated that information in the presentation on ‘where do emissions come from?’ helped them to identify further areas in their lives where they could reduce their emissions (Gaillard 2008). The standard slide in presentations on solutions or “What can you do?” includes four actions individuals can take: reduce your own emissions, buy Greenpower, offset the rest and spread the word”. Findings from semi-structured interviews suggest that this short list of practical solutions for individuals seems to suit audience members looking to either get involved or to take additional actions in their daily lives.

However, for others respondents the presentation didn’t suggest anything that they were not already doing. As one respondent indicated “I would have liked to have heard more in-depth ideas for ways an individual can contribute rather than the simplistic day-to-day activities that most of us do or try to do” (respondent). For these audience members, the ‘four actions’ slide appears to fall short. Some respondents would have liked a wider discussion on alternative solutions and for the presenter to touch upon the need for broader social transformations. As one respondent stated “solutions need to address not solely individual actions and technical fixes but also the social and political changes required to tackle the issue” (respondent). For audience members already pro-actively engaging with climate change and looking for further involvement, presentations could go beyond ‘simple’ steps and make a stronger case for citizen activism (Chase 2007) and bigger commitments.

These preliminary results show how crucial it is for presenters to customise the solution information to their specific audience by reflecting on who the audience is, what they know and do already, what they need and want, what their areas of interest are and what their capacity for action or further is. There is no ‘one size fits all’ list of solutions as the level of engagement on and interest about climate change seems to differ greatly among audiences.

Engaging people socially

Some respondents attend a presentation hoping to engage with other people interested and/or concerned about climate change, “I want to meet likeminded people who are interested in climate change” (respondent) or “other interested parties” (respondent). Although some presenters include interesting initiatives (such as using the slide-show as an introduction to a discussion forum among attendees or breaking up the slide show with interactive activities to allow more dialogue and interaction with audience members, most presentations attended to date follow the traditional slide-show and lecture format (Gaillard 2008). Some respondents would have liked some time either during or around the slide show to interact with other people, discuss the topic and “network” (respondent). They not only wish to learn from the presenter but also from other audience members. As one respondent stated in her questionnaire, “I am happy to see that there are more and more people passionate about climate change”. However, this respondent later indicated during the interview that she was disappointed that she did not have the chance to interact at the presentation.

A few attendees indicated that they hoped to learn at the presentation how other people were responding to the climate change locally or “community projects and networks I could join” (respondent). Some attendees claimed that they would like to get involved but they did not always know how and where. This is in line with Kaplan (2000) who argues that individuals value opportunities to be involved in community activities and to take action. Based on observations, some presentations promote examples of successful local community projects such as climate actions groups to inspire audience members to take individual and collective action. These examples not only show that individuals, communities and/or organisations are already taking action on climate change but also how attendees can take action. As one respondent stated “to get people to act, you need to get them to see that other people are being proactive” (respondent). Indeed, some respondents claimed that the examples gave them ideas and increased their motivation to act, “If they can do it, we can do it” (respondent). Examples also can provide a way to make climate change relevant to people where they live and work. All these findings indicate a need for The Climate Project-Australia to shift from a mainly one-way ‘message delivery’ to a two-way communication process that encourages more dialogue among participants and promote active social learning, while still using the slide show.

2. Widening the circle of educators and communicators

Presenters' credibility

As Moser and Dilling (2007: 501) state in their book *Creating a Climate for Change*, effective communication and education has to achieve a match between the audience and what it perceives to be a credible and legitimate messenger. This raises the question of what makes someone persuasive (Gladwell 2002).

Findings from semi-structured interviews show that audience members have diverse ideas about what makes a presenter persuasive. These include:

- Similar professional background, “the presenter has a similar professional background than me so I could relate to his position” (respondent);
- Level of interest on the issue, enthusiasm and passion, “the presenter was very passionate and his passion was contagious”,
- Good presentation skills, “the presenter was a very good and engaging speaker”
- Personal commitment to a sustainable lifestyle, “I know the presenter personally. She embraces a sustainable lifestyle, she is connected to this place and she is doing her part to tackle climate change. All these give her credibility”
- The fact that The Climate Project-Australia’s presentations are based on Al Gore’s slide show, as part of his leadership programme, added credibility for some respondents: “the fact that the presenter has been trained by Al Gore made him credible”.

According to Chess and Johnson (2007: 23), the importance of credible educators and communicators has not yet been examined in the context of climate change. Further exploration in this study of what makes The Climate Project-Australia presenters credible or not offer some contribution to the field.

Spreading the word

When asked in the questionnaire, what actions audience members were likely to take to address climate change as a result of attending the presentation, only a few respondents stated that they would talk to their family, friends, neighbours and colleagues. However, when asked during semi-structured interviews who they spoke to after attending the presentation about either the presentation itself and/or climate change, a larger number of respondents reported having talked to colleagues, friends and families about either the presentation and/or climate change after attending the presentation. Interview findings indicate that some audience members consider

climate change to be a risky issue to discuss with others. Respondents provided various reasons for this, including the complexity of the issue, the lack of opportunity to raise the issue, the lack of interest from others, the lack of confidence in own knowledge on the issue, and feeling like they were in a minority.

For some, “taking about climate change is not always easy due to the complexity of the issue” (respondent), “the opportunity does not always come up” (respondents) and “a lot of people are not interested or do not want to hear about it” (respondent). For others, they are afraid to be perceived as ‘greenies’ (respondent), as “messengers of doom and gloom” (respondent) or as ‘unpopular’ (respondent). Thus, audience members only tended to only bring up the issue with people who they knew were receptive. A few respondents also hoped that by making changes in their own lives, they could encourage others to reflect and try out changes themselves.

Some attendees felt that they needed to know more on climate change (e.g. on climate change science, causes and impacts, implications for Australia and worldwide and alternative technological, financial, individual, social and political solutions) before engaging others on the topic, “I want to learn more knowledge of scientific facts related to climate change for use in discussions with friends and family members in this presentation” (respondent) or ” how we can successfully tackle climate change in Australia” (respondent). A few attendees indicate that they hope to learn from the presentation “how to educate others on climate change” (respondent) and “some presentation skills” (respondent).

The findings indicate that a number of respondents still find it challenging to engage others on climate change and believe that they are a minority. Thus, it is key for The Climate Project-Australia to encourage and better equip attendees to reach out to others already engaged as well as not yet engaged with climate change; or as one presenter stated “in this presentation, I hope to provide you with ammunitions when you are trying to engage with others and enthusiasm because ‘spreading the word’ is what it is all about”. It is also crucial to encourage attendees to talk to one another, exchange stories, ideas and knowledge to build mutual support and feel as part of a growing collective.

Conclusion

This research explores social diffusion theory in the context of climate change and how education and communication initiatives, such as The Climate Project-Australia, can promote both individual and social change towards sustainability. The current challenge for education and communication in Australia is to persuade more Australians that they should engage with climate change and take action. A key finding from this research is that there is not one, but many Australian audiences and thus, it is crucial for education and communication efforts, such as The Climate Project- Australia, to be strategic in their approach to these audiences. Educators and communicators must reflect on: who the audience is, what they need or want, what they know and do already, what their capacity for further engagement is, what the key messages to be conveyed are, what solutions should be promoted and what the expected outcomes from the education and communication outreach are.

Education and communication initiatives such as The Climate Change Project Australia need to move from a one-way information delivery to a two-way learning process that engages individuals within their social context in order to assist social diffusion towards broader social change for a sustainable future. However this presents key challenges for educators and communicators.

References

ACF (2008), Australian Conservation Foundation, viewed 31 July 2008, <http://www.acfonline.org.au>.

Allen, D. (1988), "New Telecommunication Services: Network Externalities and Critical Mass", *Telecommunication Policy*, vol.12, no 3, pp.257-271.

Ambrose, M. (2006), "David Suzuki: We can change the world in one Generation", *Habitat Australia*, pp.12-13.

Atkisson, A. (1999), *Believing Cassandra: an optimist look at a pessimist's world*, Chelsea Green, White River Junction, Vermont.

Ball, P. (2005), *Critical Mass: How one thing leads to another*, Arrow Books, London, UK.

- Bandura, A. (1977), *Social Learning Theory*, Prentice Hall, Englewoods Cliffs, N.J.
- Bandura, A. (2000), "Exercise of Human Agency Through Collective Efficacy", *Current Directions in Psychological Science*, vol.9, no.3, pp.75-78.
- Bardwell, L. (1991), "Success Stories: Imagery by Example", *Journal of Environmental Education*, vol. 23, no.1, pp.5-10.
- BBC World Service (2007), *Climate Change: Global Poll*, viewed 31 July 2008, http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/25_09_07climatepoll.pdf.
- Birney, A., Hren, B., Jackson, L. and Kendell, P. (2006), "Creating Pathways to Change". In Filho, W. L., (Ed.), *Innovation, education and communication for sustainable development*, Peter Lang, Frankfurt am, New York, N.Y.
- Bulkeley, H. (2000), "Common knowledge? Public understanding of climate change in Newcastle, Australia", *Public Understanding of Science*, vol.9, pp.313-333.
- Chase, S. (2007), *The Other "Inconvenient Truth"*, *Synthesis/Regeneration* 42, Winter 2007, viewed 31 July 2008, <http://www.greens.org/s-r/42/42-10.html>
- Chess, C. and Johnson, B. (2007), "Information is not enough", in Moser, S. and Dilling, L. (Ed.), *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge University Press, Cambridge, UK, pp.223-233.
- Cialdini, R. (2000), *Influence: Science and Practice* (4th Ed.), Allyn & Bacon, Inc., Boston, Massachusetts.
- Clayton, S. & Brook, A. (2005), *Can psychology help save the world? A model for conservation psychology*, *Analyses of Social Issues and Public Policy*, vol. 5, no.1, pp.87-102.
- Clover, D. E. (1996), "Developing international environmental adult education: the challenge, theory and practice", in Filho, L., Murphy, Z. and O'Loan, K. (Ed.), *A Sourcebook for Environmental Education: A Practical Review Based on the Belgrade Charter*, The Parthenon Publishing Group, London, pp.92-111.
- Clover, D. E., Follen, S. and Hall, B. (1998), *The Nature of Transformation: Environmental, Adult and Popular Education*, University of Toronto Press Inc., Toronto, Ontario, Canada.
- Clover, D. E. (2002), "Traversing the Gap: Concientizacion, educative-activism in environmental adult education", *Environmental Education Research*, vol.8, no.3, pp. 315-323.
- Clover, D. E. (2003), "Environmental Adult Education: Critique and Creativity In a Globalizing World", in Clover, D. E. and Hill, L.H. (Ed.), *Environmental adult education: ecological learning, theory, and practice for socio environmental change*, San Francisco, pp.5-15.

- Clover, D., E. and Hill, L. H. (2003), *Environmental adult education: ecological learning, theory, and practice for socio environmental change*, Jossey Bass, San Francisco.
- Downing, P. and Ballantyne, J. (2007), “Turning Point or Tipping Point? Social marketing and climate change”, Ipsos Mori Social Research Institute, UK, viewed 31 July, 2008, [ipsosmori.co.uk/ assets/reports/turning-point-or-tipping-point.pdf](http://ipsosmori.co.uk/assets/reports/turning-point-or-tipping-point.pdf)
- Fien, J. (1993), *Environmental Education: a pathway to sustainability*, Deakin University, Geelong, Australia.
- Gaillard, E. (2008), “Communicating climate change Down Under: an Australian case study”, *International Journal for Sustainability Communication*, vol. 3, pp.133-151, viewed 31 July 2008, http://www.ijsc-online.org/en/details/gaillard_03.php
- Gelbspan, R. (2001), “Foreword”, in Dauncey, G. with Mazza, P. (Ed.), *Stormy Weather: 101 Solutions to Global Climate Change*, New Society Publishers, Gabriola Island, British Columbia, pp.xi-xii.
- Gladwell, M. (2002), *The Tipping Point: How Little Things Can Make a Big Difference*, Back Bay Books, New York, NY.
- Goldstein, N. J. and Cialdini, R. B. (2007), “Using social norms as a lever of social Influence”, in Pratkanis, A. (Ed.), *The Science of Social Influence: Advances and Future Progress*, Psychology Press, Philadelphia, PA, pp.167-192.
- Haag, A. (2007), “Al' Army”, *Nature* April 2007 vol.12, pp.723-724.
- Harriss, R. (2007), “An ongoing dialogue on climate change: the Boulder Manifesto”, in Moser, S. and Dilling, L. (Ed.) *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge University Press, Cambridge, UK, pp.485-490.
- Hill, R. J. (2003), “Environmental Justice: Environmental Adult Education at the Confluence of Oppressions”, in Clover, D. E. and Hill, L. H. (Ed.), *Environmental Adult Education: Ecological learning, theory and practice for socio environmental Change*, Jossey Bass, San Francisco
- Huckle, J. (1993), “Education and Sustainability: a view from critical theory”, in Fien J. (Ed.) *Environmental Education: a pathway to sustainability*, Deakin University Press, Australia, pp.42-68.
- IPCC (2001), *Third Assessment Report 2001. Summary for Policymakers*, viewed 31 July 2008, <http://www.ipcc.ch/pdf/climate-changes2001/synthesis-spm/synthesis-spm-en.pdf>
- IPCC (2007), *Fourth Assessment Report 2007. Synthesis Report*, viewed 31 July, 2008, http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

- Johnston, J. (2006), "Educating for Sustainable Development by Teaching about SD" in Filho, W. L. (Ed.) *Innovation, education and communication for sustainable Development*, Peter Lang, Frankfurt am Main; New York, N.Y.
- Kaplan, S. (2000), "Human Nature and Environmentally Responsible Behavior", *Journal of Social Issues*, vol.56, no.3, pp. 491-508.
- Kollmuss, A. and Agyeman, J. (2002), "Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Research*, vol.8, no.3, pp. 239-260.
- Leiserowitz, A. (2004), "Before and after the Day After Tomorrow: A U.S. study of climate change risk perception", *Environment*, vol. 46, no.9, pp.22-37
- Leiserowitz, A. (2007), *International Public Opinion, Perception, and Understanding of Global Climate Change*, Human Development Report 2007/2008 "Fighting climate change: Human solidarity in a divided world", UNDP, viewed 31 July 2008, http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/leiserowitz_anthony6.pdf
- Lipschutz, R., D. (1996), *Global Civil Society and Global Environment Governance*, State University of New York Press, Albany, New York.
- Lopez, J. and Scott, J. (2000), *Social Structure*, Open University Press, Buckingham, UK.
- Lorenzoni, I., and Pidgeon, N. (2006), "Public Views on Climate Change: European and USA Perspectives", *Climatic Change*, vol.77, no.1-2, pp.73-95.
- Lorenzoni, I., Nicholson-Cole, S. and Whitmarsh, L. (2007), "Barriers perceived to engaging with climate change among the UK public and their policy implications", *Global Environmental Change*, vol.7, pp.445-459.
- Lowe, T., Brown, K., Suraje, D., De Franca Doria, M., Haynes, K. and Vincent, K. (2006), "Does tomorrow ever come? Disaster narrative and public perceptions of climate change", *Public Understanding of Science*, vol.15, pp. 435-457.
- Maniates, M. (2001), "Individualization: Plant a Tree, Buy a Bike, Save the World?", *Global Environmental Politics*, vol.1, no.3, pp.31-51.
- Milbrath, L. (1989), *Envisioning a Sustainable Society: Learning Our Way Out*, State University of New York Press, Albany, NY.
- Moser, S., and Dilling, L. (2004), "Making Climate Hot: Communicating the urgency and challenge of global climate change", *Environment*, vol.45, pp.32-46.
- Moser, S. (2006), "Communicating Climate Change Motivating Civic Action: An Opportunity for Democratic Renewal?", in *Climate Change Politics in North America*, Woodrow Wilson International Centre for Scholars, Canada Institute.
- Moser, S., and Dilling, L. (2007), *Creating a climate for change: communicating*

climate and facilitating social change, Cambridge University Press, Cambridge, UK.

Moser, S. (2007), "Communication Strategies", in Isham, J. and Waage, S. (Ed.), *Ignition: What you can do to flight global warming and spark a Movement*, Island Press, Washington, pp.73-93.

Moser, S. (2008) "Toward a deeper engagement of the U.S. public on climate change: the 44th president of the United States of America", in *International Journal for Sustainability Communication*, Vol. 3, pp.119-132, viewed 31 July 2008
http://www.ijsc-online.org/en/details/moser_03.php

Nicholson-Cole, S. (2004), *Imag(in)ing climate change: Exploring people's visual imagery, issue salience and personal efficacy*, Unpublished PhD thesis, School of Environmental Sciences, University of East Anglia, Norwich.

Oskamp, S. (2002), "Environmentally responsible behavior: teaching and promoting it effectively", *Analysis of Social Issues and Public Policy*, vol.2, no.1, pp.173-82.

Padolsky, M. E. (2006), *Bringing Climate Change Down to Earth: Science and Participation in Canadian and Australian Climate Change Campaigns*, PhD diss., University of California, San Diego.

Palmer, J. A. (1998), *Environmental Education in the 21st Century: Theory, Practice, Progress and Promise*, Routledge, London.

Pearse, G. (2007), *High and Dry: John Howard, climate change and the selling of Australia's future*, Penguin Group (Australia), Camberwell, Victoria.

Princen, T., Maniates, M. & Conca. K. (2002), *Confronting Consumption*, The MIT Press, Cambridge, Massachusetts.

Rabkin, S., and Gershon, D. (2007), "Changing the world one household at a time: Portland's 30's day program to lose 5,000 pounds", in Moser, S. and Dilling, L. (Ed.) *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge University Press, Cambridge, UK, pp.292-302.

Reardon, K. (1991), *Persuasion in practice*, Sage, Newbury Park.

Rogers, E. (2003), *Diffusion of Innovations*, 5th Ed., Free Press, New York, NY.

Serrano, I., R. (1998), "Social Learning: Which Way out?", *Community and Habitat*, vol.1, pp.76-87.

Stern, P. C., Dietz, T., Gregory, T., Guagnano, A. and Kalof, L. (1999), *A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism*, *Research in Human Ecology*, vol.6, no.2, pp.81-97.

Stern, P. C. (2000), "Toward a Coherent Theory of Environmentally Significant Behaviour", *Journal of Social Issues*, vol.56, no.3, pp.407-424.

Suzuki, D. (1999) *The Sacred Balance: Rediscovering our place in nature*, Allen & Unwin, Crows Nest, NSW, Australia.

Tribbia, J. (2007), “Stuck in the slow lane of behaviour change? A not-so-superman perspective on getting out of our cars”, in Moser, S. and Dilling, L. (Ed.), *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge University Press, Cambridge, UK, pp.237-250.