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Abstract

An action-research collaboration between 20 city and regional councils has created New Zealand's distinctive *Sustainable Living* community education programme. Community-based adult education activity was being offered by a range of high schools, environment centres and other non-governmental organisations as well as at council venues. Expansion towards national delivery looks feasible. Learning materials and facilitator guides are published for use by subscribing councils and their education partners on CD, with regular updating, and parts appear on the Internet. The content focuses on why and how to act; and the social learning process on group interactions designed to build motivation.

Useful lessons have been learned on who responds to household or lifestyle environmental issues within New Zealand's prevailing consumer culture, what actions participants can be prompted to take by community education, and some key factors affecting behaviour change. Comparison with other NZ and Australian initiatives also targeted on adults and communities has been made recently as part of a FRST-funded Landcare Research project on "capacity building for sustainable development". This paper summarises the comparative research findings and makes recommendations to assist in design and evaluation of the studied and similar educational programmes.

"Behavioural change is fast becoming a kind of 'holy grail' for sustainable development policy – and in particular for sustainable consumption policies. How can we persuade people to behave in more environmentally and socially responsible ways? How can we shift people's transport modes, appliance choices, eating habits, leisure practices, lifestyle expectations (and so on) in such a way as to reduce the damaging impact on the environment and on other people? How can we encourage sustainable consumption and discourage unsustainable consumption?"

Sustainable Development Commissioner Prof. Tim Jackson, University of Surrey, UK (2005, p. 94).

Introduction

Over the past five years a community-based programme of pro-environmental sustainability education and action has been developed in New Zealand collaboratively by city and regional government, initially championed by Marlborough District Council (McDonald & Bielby, 2004; PCE, 2004). *Sustainable*

*Living*¹ topics include water, waste, energy, travel, gardening and organic food growing, shopping and building, delivered as single-issue seminars or more often with all topics integrated as a weekly evening class of one-term duration. Nationally, it has shown an action-research focus, allowing variation in delivery and branding in different locations and soliciting feedback from the regions, in an “experiential learning cycle” (Kolb, 1984; Allen et al., 2002). Local government has been in a leadership role, enlisting external partners to aid delivery (Taylor & Frame, 2005; PCE, 2004).

The tutors or group leaders use a centrally published facilitation process guide, visual aid slides, learner handouts and more technical background reference material, and they also have access to advice from a national coordinator by email and phone. Reading materials are edited and reviewed centrally, circulated to partner councils on CD, and the handouts only printed as required for delivery, so that paper wastage is minimised and the content is up-to-date. A public website was established to respond to interest expressed from areas of New Zealand not yet covered by local course delivery: <http://www.sustainablehouseholds.org.nz>. A second website is in preparation for 2007 using the [sustainableliving.co.nz](http://www.sustainableliving.co.nz) domain name.

The number of participating councils has risen from the initial eight to 20, and they now range from urban Waitakere, Christchurch and Dunedin to rural Central Otago, and Bay of Plenty. Delivery partners include community education organisers and tutors at high schools, environment centres, polytechnics and marae. Early financial assistance from the Ministry for the Environment helped to develop education materials, and the programme is now funded nationally by the local councils and locally by course participants’ fees. Eligible school-based evening classes are also subsidised, through education hosts, by the Tertiary Education Commission, the Government funder for life-long education to meet society’s needs (Rivers & Lynch, 2001).

Evaluations of pro-environment and sustainability-focused public education programmes have increased in recent years, permitting comparison of NZ experience with several English-speaking countries: UK, Australia and Canada. This paper compares such emerging overseas evaluation findings to the joint authors’ recent NZ case study of the *Sustainable Living* programme (SLP), more detail on which appears in a second paper (Taylor & Allen, 2006). Most other sustainability-focused public initiatives by local government in New Zealand since 2000 have employed social marketing or advertising campaign² methods rather than discursive adult education.

Adult community education

Experiential learning theorists argue that, within the adult learner, knowledge is created internally through the transformation of previous experience³.

¹ Originally titled ‘Sustainable Households’ www.sustainablehouseholds.org.nz but renamed after marketing research showed that ‘living’ appealed to a wider demographic. New website in March 2007 at www.sustainableliving.co.nz

² Such as Auckland’s *The Big Clean Up*, Wellington’s *Be the Difference* and Hamilton’s *Know it? Live it!* (see references) A one-year experiment in Wellington looked at outreach to community clubs and groups from *Be the Difference* and found that one-off visits as guest speakers did not generally build rapport or prompt behaviour change.

³ Key names here are Lewin, Dewey, Kolb, Bruner, Freire and Argyris. It has been influenced by Piaget’s cognitive psychology. It may be less-suited to the transmission of exact instruction sequences

During the learning process, concepts change, influenced by the learner's reflections (Boud et al., 1985). This approach allows for restructuring or construction of knowledge within the learner (Delay, 1996), guided to some extent by the tutor and their resource materials. Learning for adults is a two-way communication process, not simply receipt of information. New ideas replace previously held ones: by integration when they fit together easily, or by substitution when they do not, and the latter can potentially, but not frequently, be transformative (Cranton, 1994; Stirling, 2001). Sometimes several conflicting ideas are held at once, and learning is the resolution of the conflict⁴.

Community and continuing education are informal post-school opportunities for people to gain and refine life-skills, and develop diverse leisure-time or potential work interests. It is also about equipping people for further learning and building their capacity for change. New Zealand has a long tradition of evening class participation that sees over 230,000 adults involved in part-time study each year, at high schools, maraes, polytechnics, libraries and other venues⁵. There is no compulsion to attend, in contrast to people's earlier schooling experiences. Although there is usually end-of-course evaluation, relatively few evening classes offer formal certification. Study is motivated by intrinsic interest and usefulness, and by the event's social appeal – new friendships are often made.

In this paper we look at community education for environmental sustainability, a form of future-focused thinking and action-learning (Tilbury et al., 2005), which can be distinguished both from providing information about the environment, or offering experiences in the environment (such as field trips, or outdoor volunteering). However, we acknowledge that for some individuals all three may provide relevant experiences affecting worldviews and motivations towards sustainable behaviour.

The learners

What our surveys of hundreds of *Sustainable Living* participants across New Zealand have shown is that they are socio-economically diverse, but on average are relatively well educated (successful at secondary level and include some tertiary qualified), more likely to be female than male, pro-environment in attitude but much more often pragmatists than environmental activists. If overseas trends are followed (Laroche et al., 2001) they are more sympathetic to collectivist than individualist values. They attend courses most often when in their 20's, 50's and 60's. Community education on nearly all topics sees a dip in attendance in the young-adult/family-formation years, when people have other earning and caring pressures on their time. A majority of participants are parents and/or grandparents, which contributes a focus upon future quality of life. They are attracted by the opportunity to meet kindred spirits – others who share their attitudes and interests.

or very specific task skills than a behaviourist approach, but the understanding gained is not dependent on reinforcement of actions by external stimulus or reward.

⁴ The *theory-in-use*, which guides current action, can co-exist in conflict with an *espoused theory* of what we'd like to do (Argyris & Schön, 1974, 1996). Learning is how we deal with, or accommodate the dis-equilibrium presented by new information/experiences, through restructuring our understanding.

⁵ 200,000 adult enrolments at evening classes hosted by high schools, 20,000 at tertiary institutions, 12,000 at WEA plus thousands of rural students of REAP (Rivers & Lynch, 2001). Benseman et al. (1996) provide an excellent overview.

Learning is a social experience – showing influence of others

Meta-analyses from many studies have demonstrated the validity of *social norms*, *personal attitudes* and *self-efficacy* as three reliable predictors of both intentions to act and behaviours (Sheehan et al., 2006)⁶. As applied in Western countries within the field of health, behaviour change theories are used to plan interventions, e.g. those that will encourage breaking out of damaging habits and addictions (Prochaska, et al., 1992; Clinebell, 1998). When related to the field of pro-sustainability behaviours, the theories have been used to encourage reduced electricity consumption, increase recycling, and influence shopping or travel choices. Since the 1970s individual attitudes and psychology have been a focus of one research stream; and the frame of social institutions and cultural conditions the focus of another. Contrasting these when looking at recycling behaviours, Jackson (2005) comments: “On the understanding that attitudes are the most important determinants of successful pro-environmental behaviour, the *internalist approach* (e.g. Arbuthnot, 1974; de Young, 1986, 1990) calls mainly for awareness raising, information provision and advertising campaigns to motivate pro-environmental attitudes. By contrast, the *externalist approach* (e.g. Ingram & Geller, 1975; Witmer & Geller, 1976; Jacobs & Bailey, 1982/3) tends to call for a combination of incentives and changes in the regulatory structure to create the right conditions for pro-environmental behaviour.” The internalist favours creation of value-goals and commitments to change, while the externalist favours persuasion, reinforcement and other forces of Aristotelian rationality⁷, based on credible sources persuading responsive audiences.

However, behaviour change can often be observed to occur without prior changes in attitude, to be based on trial and error, or copying the example of others – known as modelling or social learning – without requirement for those peers to be authoritative. Within society, fashion change creates cognitive dissonance (Festinger, 1957) from the previous state. Emulating the behaviour of celebrities who adopt an environmental cause can effect motivation to change in their audience (Petty & Cacioppo, 1981, 1986). A feature series in the UK’s tabloid *Sun* newspaper offering serious climate change exhortations by celebrities illustrated this, for a week in September 2006. The particular actions may be of less persuasive appeal than the celebrity’s persona in this circumstance and, much like a behaviour discovered by trial and error, might not become established without additional prompts or “retrieval cues” such as making commitment statements, carefully placed reminder messages (e.g. on switches, doors, taps) or loyalty schemes (Bator & Cialdini, 2000; McKenzie-Mohr, 2000) including smart cards⁸. Others need to be seen to take part too, to generate credibility (Sustainable Consumption Round Table, 2006)

⁶ Leading theories of social health behaviour, often adapted to environmental behaviour, are: the theory of planned behaviour (Ajzen, 1991), theory of reasoned action and expectancy (Fishbein & Ajzen, 1975), interpersonal behaviour model based on intentions and habits (Triandis, 1977), health belief model (Rosenstock, 1974), the trans-theoretical model (Prochaska et al., 1992), prototype/willingness model (Gibbons 1998), motivation-opportunity-abilities model (Ölander & Thøgersen, 1995) and social cognitive theory, including the influence of role models (Bandura, 1997).

⁷ For some of the limitations to persuasion theory see Petty et al. (2002).

⁸ In the Netherlands the NU Spaar-pas smart card experiment 2002–2004 attracted 10,000 holders for an incentive backing waste-reduction (Holdsworth & Steedman, 2005).

Prompting behaviour change

Many approaches exist toward changing individuals' environmentally significant behaviour (faster than may occur spontaneously through trial and error). Gardner and Stern (1996/2002) reviewed the evidence on four major types of intervention:

- Religious and moral approaches that appeal to values and aim to change broad worldviews and beliefs (transformative)
- Education to change attitudes and provide information (educational/informative)
- Efforts to change the material incentive structure of behaviour by providing monetary and other types of rewards or penalties (incentives, reinforcements)
- Community management, involving the establishment of shared rules, networks and group norm expectations (participatory, discursive).

They found that each of these intervention types, if carefully executed, can change behaviour. However, moral and educational approaches used on their own have generally disappointing track records, and even incentive-based and community-based approaches rarely produce much change if each is used on their own (Cameron, 2002). Providing both an economic incentive and accurate information, without an appropriate value commitment in place first, may not be enough to “start” pro-environmental action at home (e.g. Stern & Aronson, 1984).

Reviewing UK and international experience, Jackson (2005) concludes: “The history of information and advertising campaigns to promote sustainable behavioural change is littered with failures.” And the same key finding, of a distinct “gap” where pro-environment attitude and provision of information are not sufficient on their own to prompt major behaviour change (Kollmuss & Agyeman, 2002), is supported by many others (Ajzen & Fishbein, 1980; Geller, 1981; Geller et al., 1983; DeYoung, 1989; Geurrie, 1995; McKenzie-Mohr, 2000; Bedford et al., 2004; Barr et al., 2006). The most effective behaviour-change programmes involve combinations of several of the four intervention types listed, moving beyond the one-way communication of advertising and publishing.

Limitations of advertising

However, this finding appears to be repeatedly ignored, by public information campaigns intended to build awareness or to spontaneously change values, without associated social learning activity to engage or motivate action, and without incentives or social rules visible in support. In the UK, *Are You Doing Your Bit?* a 21 million pound Government broadcast and print media campaign, with celebrity support, of 1999–2002 failed, probably on this basis (DETR, 1999). It was prematurely scrapped without any published evaluation (Darnton, 2004; Hounsham, 2006) but described as “inadequate” by a 2003 House of Commons Select Committee on Environmental Audit.

In contrast the Auckland Regional Council (ARC) *0800-Smokey* advertising programme of 2000 had a single clear call to citizen action: reporting vehicles sighted with smoking exhausts. By building public engagement through telephone interaction – 55,000 calls – ARC created an air quality campaign strong enough to result in NZ-wide legislation to control visible exhaust-emissions that exceed 10 seconds duration (Frame, 2004; Ministry of Transport, 2006). The prompted actions helped to build a wider values shift, moving the social norm away from toleration of smokey vehicles.

Such single-issue campaigns are better suited to use of poster and broadcast media than are complex, systems-approaches advocating multiple actions, such as lifestyle re-evaluation. ARC's subsequent *Big Clean Up Campaign*⁹ has serialised their list of actions at about two per year, to make media coverage and distribution of published materials more feasible. Over 44,000 people have now registered interest to receive such messages by post or email, demonstrating a raised awareness, but conversion into actions is hard to prompt or to measure without opportunities for closer personal contact, a step now being investigated by community-education-experienced council staff.

Attitudes include personal evaluation or belief about the effect of action or inaction, such as: "If I recycle these used packaging materials, the environment and economy will benefit", while social norms relate to what a person thinks others do or would do, such as "most people in my street put a filled recycling crate on the kerbside once a week". Self-efficacy (Bandura, 2000) relates to the confidence to take action competently, so, to follow the original example, the self-talk runs: "I have a recycling crate available here, and know what items to include and exclude".

Working directly with individuals

A few programmes have focused on personal two-way communication by home visitors, in resource-use efficiency (based on house energy audits, water audits) and particularly in the field of travel behaviour, exemplified by *Travel Smart* (Govt. West Australia, 2001)¹⁰. This topic has otherwise proved intractable for community education, where car use for convenience and by habit – the social norm demonstrated by most educational group members in the case studies – seems to outweigh any individual driver's attitude shift towards alternatives to car use (Hobson, 2002; Taylor & Allen, 2006), unless there are also external incentives such as very high fuel prices, city access or congestion charges (such as in London), free bus travel alternatives or urgent health improvement needs such as receiving a GP's "Green Prescription" for exercise, to tip drivers into action on an already-contemplated alternative.

A second way of working with individuals is making use of interactive websites. Organisations such as the Natural Step Canada (2006) have devised an online course in sustainability principles, of just a few hours duration, and the Australian Conservation Foundation offer a 12-week repeat-visit version of their *Green Home* course on-line (ACF, 2005). While content and pace are easy to control in this predominantly one-way communication medium, the solo learner misses out on the social interactions of a learning and discussion group. It will be interesting to see whether the younger age group, well accustomed to websites, will become more frequent users of independent online learning than their parents, or whether the need to socialise and discuss will still bring them into groups.

The Centre for Appropriate Technology at Machynlleth in Wales provides a free information service to visitors and responds to individuals by email. The most

⁹ *Big Clean Up* costings were approximately \$120,000 for initial set up of the database and website, \$500,000 for the launch media campaign, \$30,000 for each mailing and email newsletter, and \$250,000 for each topic featured (ARC 2001–2006).

¹⁰ In South Perth City this "individualised marketing" and commitments approach led to a 90% increase in cycling, 10% decrease in single occupancy car use, 20% increase in public transport use, 16% increase in walking trips, for respondents (Gov of West Australia 2001)

frequent information request topics in 2005 were on energy, buildings, gardening and water; and least frequent (of the categories recorded) on transport. The most frequently downloaded information sections from the *Greener Homes Guide* at the Woking Council UK website (2005) were on insulation, heating and renewable energy sources. In New Zealand at the Sustainable Households website, the most frequently downloaded files in 2005 were those on energy, waste and gardening, with transport again the least frequently accessed.

Group sources of motivation

When learning, adults tend to be best motivated (Kaplan, 2000) to:

- discover and explore (hence the common experience of trial and error)
- acquire information at their own pace, particularly as it becomes relevant and answers the questions that they pose (self-talk, questioning others, researching)
- to increase their sense of competence (efficacy), and
- try to remove confusion or helplessness, which sometimes stems from excess information, guilt or depressing information.

An intention to change behaviour is influenced, (about equally, according to Sheehan et al. (2006)) by the factors of social norm, personal attitude and self-efficacy. However, the intention to act is less likely to be translated into behaviour where self-efficacy is weak. Alongside pro-environment personal attitudes and favourable social learning processes to build self-efficacy, the socio-economic and cultural context has a large influence on whether information crosses the gap into action, by providing social norms and rules that enable or disable certain actions¹¹. Further incentives or disincentives come from perceived benefits or costs of action. There is strong evidence, for example, that incentives and information interact, with a planned combination potentially more effective in prompting action than the sum of the two interventions (Stern et al., 1999).

Like Global Action Plan's *Action at Home* groups and subsequent *Eco-Teams* (Barr, 2003b; Burgess et al., 2003; Poyzer, 2004, 2005), the NZ *Sustainable Living* programme provides educational content in a "discursive" social learning setting (Dryzek, 1990; Spaargaren & van Vliet, 2000). It seeks to influence attitudes and values, to propose and illustrate a range or choice of actions, to encourage discussion, reflection and peer-influence supporting commitments to start action. It has no national budget available to offer incentives, although some subscribing councils have experimented with those locally, using relevant gifts and product samples, which were well received. The main setting of the learning is a social group meeting for a few hours each week, over several months. Group members participate in quizzes, debates, posing questions to tutors and sometimes visiting experts. Between sessions, participants have reference to authoritative printed and web information sources, and a proportion take measurements related to environmental impact¹². An emphasis on

¹¹ Within the 'sustainability' field, only kerbside recycling is considered to be near becoming a social norm in the countries studied. Kerbside recycling participation does not necessarily result in overall waste quantity reduction and is driven more by availability and visibility of a crate than an environmental ethic (Burningham & Thrush, 2001; Barr, 2003b; Darnton, 2004).

¹² Lack of rewards for completing measurement tasks may represent a barrier to higher completion levels in the *Sustainable Living* programme, compared to some overseas examples.

solutions predominates over problems, once sufficient information is offered to show why the issue matters, to avoid disempowerment.

Because it covers eight topics and offers a wide range of possible actions, from immediate and cheap to long-term and complex, only limited research into specific barriers to change has been possible within each topic. This makes it difficult to implement the detailed barrier analysis and community-based social marketing steps advocated by McKenzie-Mohr (2000), McKenzie-Mohr & Smith (1999) or Holdsworth & Steedman (2005). Additional research effort in this area might substantially increase the impact of the programme, where delivery-design changes could target identified barriers.

Reflection and empowerment

Knowing confidently why, what to do and how, are keys to pro-environmental behaviour change¹³, so general theories about effective adult-learning process have a role in programme design and operation. Education is much more than offering informative content. “Learning changes you, and equally, change requires learning what you want to do. That this new learning will stem from changes in the wider environment indicates that both psychological and social-cultural influences will impact on behaviour” (Allen, 2005). Theoretical support, of which space limitations here precludes detailed discussion, includes: empowerment by social learning (Page & Czuba, 1999), learning style preference (Honey & Mumford, 1982), critical reflection (Schon, 1983; Mezirow, 1991; Hampton & Hampton, 1993) transformative education (Stirling, 2001) and tipping points (Gladwell, 2002).

Have *Sustainable Living* programme (SLP) participants demonstrated reflection and experienced empowerment? Feedback from the exit questionnaires and telephone follow-up sample survey suggests that the peer group’s supportive role was at least equal to the tutor and written material contributions to their individual learning and confidence-building. Participants frequently commented on learning from others’ examples and observations. Such collaboration represents a building of capacity to change or “social capital” (Pretty & Frank, 2000).

The *most frequent* three interventions identified in an international review of programmes in this field by Sheehan et al. (2006) were: providing information, explaining consequences of action, and providing comparable examples of others taking action. Despite their frequency, these three were not however the *most effective* behaviour-change strategies they found: “Those having largest effects on behaviour were: to prompt practice, set specific goals, generate self-talk (reflection), to agree a behavioural contract and prompt review of behavioural goals”. They add that, statistically, the least effective were “inducing regret and arousing fear”, a view endorsed by recent action-research practitioners in London, UK (LSx, 2006). For them, delivery one-to-one or in a group setting led by professionals, religious leaders and by peers as other learners, had more impact on behaviour than message delivery impersonally via mail, posters or broadcasts.

Comparing experiences

¹³ Knowledge of the task content must be secure, particularly if a behaviour involves new procedures, such as the appropriate separation and sorting of recycling materials, understanding energy-rating of appliances, meter reading methods, etc.

Back in 2000, precedents that were scoped to provide design ideas for a NZ programme, included:

- *Global Action Plan: Action at Home* versions in the USA, UK and Netherlands (Gershon & Stern, 1995; Staats & Harland, 1995; GAP USA, 2005; documented subsequently in Barr, 2003b; Ginn, 2004)
- *Sustainable Living at Home* in Melbourne (City of Port Philip, 2003; Brown & McNamara, 2005)
- *Union of Concerned Scientists*, USA (Brower & Leon, 1999)
- *Choices for Sustainable Living study courses* (Northwest Earth Institute, 2006)
- *Simpler Living* and *Voluntary Simplicity* groups in the USA (Elgin, 1993; Dominguez & Robin, 1996; Andrews, 1997; Huneke, 2005)
- The *Environmental Home Guard* in Norway (summary in Holdsworth & Steedman, 2005; Norwegian EHG 1994)

Global Action Plan began in 1989 in the USA and 1994 in the UK with a focus on 30,000 individual learners, who received five information workbooks for “action at home”, at monthly intervals by post. There was no facilitation, although contact with other active participants was suggested (Hobson, 1999). Since 2000 it has been reinvented as a more-social guided four-month activity for *eco-teams* of 8–12 people, drawn from a local neighbourhood or workplace¹⁴. By last year, 2,300 people had taken part in the UK, from 385 teams. Adding this social discussion component, plus facilitation to help start each group, makes it more similar to SLP. Measurement of behaviour and resource use, especially in energy, is stronger in GAP than it has been within SLP. An interactive, web-based survey *Green Score* gathers feedback from many of their participants, allowing impact self-assessment reporting to both participants and to government and sponsors (Barr, 2003b; Global Action Plan, 2006). A similar self-reporting measurement approach is used fortnightly by the Australian Conservation Foundation participants at their *Green Homes* website (2006, not yet evaluated by ACF), and three other case studies used web-based measurement of footprints, carbon emissions and waste, with mixed success: they proved useful educationally for awareness-raising but less effective for recording.

Four key features for success in motivating action, according to GAP-UK director Trewin Restorick (pers. comm., September 2006), are:

- learning in groups
- effective clear communications
- measurement and feedback on impacts, and
- facilitated process.

Independent studies of GAP confirm this (Barr, 2003b; Burgess et al., 2003)

¹⁴ The GAP Eco Team study group “thinking globally” approach has proved less suitable in areas of lower education and literacy. A variation of the programme called *Small Change*, led by GAP-UK salaried field staff, is targeted on low-income neighbourhoods using a community development approach, to enable home energy audits, food buying cooperatives, composting projects and other locally relevant issues. Darnton (2004) endorses this avoidance of the global in order to act locally approach, writing: “disadvantaged people’s *perceived* local environment and sphere of activity is smaller than that of the better-off.” Community Energy Action in Christchurch proposes to adapt the *Sustainable Living* programme energy topic materials for low-income neighbourhood or social group use in 2007–08, along similar lines.

The *NorthWest Earth Institute*, founded by Dick and Jeanne Roy in Oregon, wrote nine-session (one term) discussion courses for small groups, based on bound collections of motivational readings, typically used at workplaces, faith communities and by groups of friends meeting at home, on topics such as “Exploring deep ecology”, “Voluntary simplicity”, and “Choices for sustainable living”. The latter one of these courses looks at a broad picture: defining sustainability, ecological principles and footprinting, alternative ways to measure success in the economy, shopping and lifestyles. It is more philosophical and less detailed in content than SLP, being focused on value change within society and individuals, to become advocates “for” the environment. A previous course participant attends the first session of each new group, as a mentor. The model has since spread outside Oregon to “Earth Institutes” in Texas, Utah and other states.

Sustainable Living at Home (SLAH) in Melbourne has travelled through six iterations. From an early start, influenced by the theatrical community development style of Vox Bandicoot Pty (Ryan et al., 2005), with lively workshops called SLAMINARS to discuss each topic, it became more formal and measurement-focused by version 6 but still continued to prompt behaviour changes affecting energy and water efficiency, shopping and travel choices, “tipping” already environment-friendly individuals into new behaviour patterns (Brown & McNamara, 2005).

Vox Bandicoot Pty established the *Sustainability Street* model (Ryan et al., 2005) from pilot work with Councils at Moreland and Wollongong, and a few years later had grown to be active in 50 communities or neighbourhoods. Their “All hands on” book separates the theory, such as understanding about blockers of sustainability, from recommended day-to-day actions. This allows a reader to start at several points, actions or values, wherever they are comfortable. For some the variable typefaces and apparent lack of structure and direction could be confusing. Cartoons, wall-charts, explanatory diagrams and metaphors such as a learning cycle of “mulch-grow-harvest-sow” have been developed through participative community contact. Results are similar to SLP – waste reduction, energy efficiency actions, water-savings, but *Sustainability Street’s* emphasis on process means that the group dynamic may be stronger and these groups tend to continue after the initially facilitated period, unlike most evening classes. It is, however, more staff-intensive initially. In the UK, Global Action Plan’s community development approach, *Small Change*, has a similar geographically-intensive approach, preferring local action to global theorising.

There is not space to describe all 27 of the case studies here – other publication outlets will be sought in due course. Case study information sources are flagged in the references below by an asterisk, but not all are specifically referenced in the text.

How participants were recruited to the various case studies, given that participation of adult learners is voluntary, was part of our enquiry. The recruitment routes used were, in order of diminishing frequency of use:

- referral through conversation or email
- news editorial coverage (sometimes along with purchased advertising)
- lists for circulation of print or email circulars or newsletters
- websites (which also had to be publicised)
- foyer displays and stands at expos
- leaflets and posters circulated to members by community groups and churches.

Media hardly ever used were television and radio broadcasting, cold calling by phone, or advertising billboards, principally because they are expensive, but also because they are so strongly associated with pro-consumption messages and thus likely to be treated skeptically by at least some of the target audience¹⁵.

Delivery methods included: single-issue public meetings for 10 of the case studies and evening class series for 5, websites for 16 (only some of which are interactive) and personalised home visits for 5. One used a shop in a retail street (Marrickville & City of Sydney, 2005)

Content – comparing the scope of *Sustainable Living* programme

Comparison of 27 case studies, mostly from UK, Australia and New Zealand, by desk study and interview visits, shows where effort is being invested in educational programmes targeted on adults within the community (school curricula and workplace programmes were excluded) (Table 1).

Topics featured	No of programmes
Sustainable development concepts	7
Greenhouse gases, climate change	12
Energy use efficiency at home	18
Car impacts, alternative travel modes	9
Stormwater impacts, freshwater quality	8
Water use efficiency at home	14
Solid waste reduction from home	15
Composting (& also worms, Bokashi)	5
Purchase impacts, shopping choices	8
Reduced chemical exposure at home	9
Building construction, renovation	4
Gardening and home food production	4
Backyard biodiversity, ecology	3

Four stages of education for sustainable development comprise a model: *Exemplify, Enable, Engage and Encourage*, that has been adopted both in the UK (Defra, 2005) and in Victoria, Australia. We have applied these broad concepts of desirable practice, building through awareness into effective action, to our observations of case study programmes internationally, to provide the groupings of Table 2. In Australia, a variation proposed by Robinson (1999, 2002) is compatible with this model. He refers to factors that predispose: enable, trigger and satisfy. Robinson also stresses the need to put effort into understanding the adult audience's situations, needs and perceptions before outsiders attempt to "educate" on sustainability agenda.

Stages	Characteristics observed in case studies	No. of case studies
Exemplify	Use role models, incl. celebrities, to	5

¹⁵ A second paper (Taylor & Allen, 2006) explores the characteristics of the audience attracted so far to the *Sustainable Living* programme in New Zealand, finding a mix of pro-environment and pragmatic attitudes at the outset, and some characteristics of a lifestyle of health and sustainability, identified as representing 32% of the US population (Ray & Anderson, 1996; Moxie, 2005).

<ul style="list-style-type: none"> Others can, so I should 	demonstrate possibilities.	
	Opportunity to meet peers, who act differently, help to normalise.	10
	Create emotional discomfort with status quo. "Unsustainable now".	7
Enable <ul style="list-style-type: none"> It's not too hard – I can do that Useful know-how 	Validate existing actions that are pro-environmental sustainability.	13
	Raise awareness of possible actions, and describe how. Cross barriers.	19+
	Opportunity to try out new actions, supportive setting for trial/error.	12+
	Provide info workbook or manual (printed and/or web-based)	8
Engage <ul style="list-style-type: none"> Get experience Be included See benefits 	Reflect on, report, and try to measure the actions taken.	5
	Formal commitment made to act. (Personal or public statement)	6
	Material incentives offered to support action: refreshments, free samples, discount vouchers, grants, advisor.	8+
	Participation, co-production, personal contact. Respond to community needs.	6
	Paid-for participation by user (to secure their commitment)	4
	Free participation for user, typically council funded (increases equity).	15
Encourage <ul style="list-style-type: none"> Share experience and enthusiasm Become role model 	Follow-up meetings +/- or newsletter after an education event or course.	5+
	Follow-up information at website.	14
	Generates community leaders or champions, from a proportion.	6+
	Acknowledge, recognise, celebrate.	3

Robinson (2002) devised a questionnaire to help determine the appropriate level from these four at which an intervention to promote behaviour change can be pitched. McKenzie Mohr & Smith (1999) use a similarly rational process.

Responding to cultural and linguistic diversity

Several of the case study programmes in Australia and UK have been adapted for use with other linguistic groups, recognising that until such special effort was made, their materials and style of operation were attracting only users of English as a first language, and failing to engage with community leaders and opinion formers within other cultures (Wong, 1998). London Sustainability Exchange (LSx, 2005 and 2006) worked on a water theme with other language groups, e.g. linking to 6,000 in Muslim communities of East London through their religious leaders. Similarly, Leichhardt Municipal Council in New South Wales ran a "Cool Communities" project that translated materials on energy and water efficiency into Italian and Spanish, and worked with bilingual educators through existing networks and events (DEC NSW, 2004). In New Zealand, Waitakere City Council is preparing Mandarin language translations of adapted *Sustainable Living* programme materials, encouraged by enquiries from Chinese residents' voluntary organisations. *Sustainable Living* content has also been peer-reviewed and edited for Maori cultural relevance and appeal, but not yet translated into Te Reo, nor any of the Pacific Island languages.

Finding appropriate tools for each audience

The spread of pro-sustainability behaviour in the NZ population beyond the 5% of “innovators” who are already committed and active might follow the typical diffusion of change model (Rogers, 1995). The approximately 25% of pro-environment “early adopters” in the population are the natural focus of community education, as they voluntarily seek opportunities to learn. They make time to be involved in community activity and learning and are potential recruits both for evening classes on sustainability themes and visits to demonstration centres and expos. However, for the central majority of the population, taking time to learn about sustainability actions, even if not described in such specialised vocabulary, may still be outside their current “frame”.¹⁶ These and other population segments for New Zealand, based on local surveys and extrapolation from similarities in other Western countries (such as Gilg et al., 2005), are presented in Table 3.

Table 3		
Estimated frequency in NZ population	Each population segment described	Scope for community education for sustainability & other methods
5% (equivalent UK ¹⁷ “committed environmentalists”)	Innovators, “greens”, value independence, committed to environment and already doing, technical pioneers. Mix of high/low incomes likely. Reluctant to attend classes.	Source of role models, educators/facilitators, sample measurement data, photos and case studies.
25% (equivalent UK “mainstream env.”)	Early adopters, pro-environment “would be green” attitudes, future-orientated, seek healthy lifestyle, include voluntary simplifiers. Sociable. May be wary of central government and big business claims/advertising. More females than males.	Main target for community education. Source of grass-roots social trends and support for NGOs. Opinion influencers. Test market for new products and services.
35% (equivalent UK “occasional env.”)	Early majority. Often environment-interested but pragmatic. “Slipping greens”. Prefer convenience, need incentives and leaders. “Prospectors”. What’s in this for me? More males than females.	Target individuals with social marketing info and incentive programmes as well as group community education. Green brands and public sector visible leadership would aid credibility.
25% (equivalent UK “non-env.”)	Late majority. “Settlers”. Prefer instant to deferred gratifications. May be respectful of authority/conformist. Environmental issues outside their frame at present – have other priorities. May incl. poorer, low discretionary spending households with lower-throughput.	Target for incentives, penalties, choice-editing¹⁸ and regulation. Follow social trends and pocket, assisted if barriers fall. Neighbourhood-scale action projects will help involve them.
10% (the rest)	The laggards are a mix of skeptics, Technological Optimists, the socially detached and those too young or old to care.	

Conclusion

Our international comparisons have endorsed an interactive, repeated, face-to-face communication (community education) model for multiple-issue education for sustainability, especially with that sizeable segment of the NZ population which is

¹⁶For concept of “outside the frame” see Rose et al. (2005), Lakoff (2005).

¹⁷ UK equivalent population segmentation labels from cluster analysis of results from Devon fieldwork by Barr et al. (2006).

¹⁸ “Choice-editing”, such as limiting the range of available food packaging varieties, not stocking clear-felled tropical hardwood timbers or limiting whiteware on display in shops to the energy-efficient models, so that the non-environment friendly choice is removed from the point of sale (Sustainable Consumption Roundtable, 2006).

environment-friendly and may be ready to change behaviour. As this includes some well-educated higher earners and thus spenders, there could be larger environmental gains from change made in these households' consumption patterns than is available in low-income households. The same households can also afford to contribute fees towards the cost of community education provision.

The potential observed for improvements in current community education for sustainable development practice here in New Zealand, to match the best seen abroad, would include:

1. further research into detail of barriers to change (especially on cost and convenience) and on how to respond to them, both within education and in wider public policy that tackles barriers and “edits choices” before attempting to change some behaviours
2. more effort to secure measurements¹⁹ by course participants in a form that will interest and engage them sufficiently to prompt a return to such recording that shows changes
3. seeking means of securing or networking new sustainability learning groups within neighbourhoods so that they continue to meet and develop their actions spontaneously after a facilitated study series or community project ends.

The social marketing based, and much less-interactive, targeted information approach may better suit single-issue campaigns with the middle majority of the population who are less motivated to attend study groups or classes. Websites can play a useful information disseminating role, especially with younger age-groups. Television programmes and example by celebrity role models may have useful parts to play here, and have been under-explored in New Zealand prior to 2007²⁰. Social marketing campaigns should be preceded and followed by focus group research into perceptions of the target audience.

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References cited *Source material for case studies marked with asterisk*

Ajzen I (1991) The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.

Ajzen I & Fishburn M (1980) *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice Hall.

Allen W, Kilvington M & Horn C (2002) Using participatory and learning-based approaches for environmental management to help achieve constructive behaviour change. Report prepared by Landcare Research for MfE, Wellington.

Available online: http://www.landcareresearch.co.nz/research/social/par_rep.asp

¹⁹ Such as use of the CarboNZero website calculators at Landcare Research.
<http://www.carbonzero.co.nz/>

²⁰ A television series called WASTED has been filmed in New Zealand recently by a team backed by South Pacific Pictures, and is due for 2007 prime-time screening on TV3.

Andrews, C (1997) *The circle of simplicity*. New York: Harper Collins.

Arbuthnot J (1974) Environmental knowledge and recycling behaviour as a function of attitude and personality characteristics. *Personality and Social Psychology Bulletin*, 1(1), 119–121.

Argyris C & Schön (1974/1996) *Organisational learning: a theory of active perspective*. Reading MA: Addison-Wesley.

*Australian Conservation Foundation (ACF)(2005) Green Home Program
<http://www.acfonline.org.au/greenhome>

*Auckland Regional Council (2001–2006) The Big Clean Up (BCU)
<http://www.arc.govt.nz/?4EB6A05B-965B-4401-B2BE-FF85AA52C523>

*Australian Greenhouse Office (2001) *Your home: your guide to comfortable living- building, buying, renovating*. Booklet and on website: <http://www.yourhome.gov.au> Institute for Sustainable Futures, University of Technology, Sydney, for the Commonwealth of Australia.

Bandura A (1997) *Self-efficacy: The exercise of control*. New York: Freeman.

Bandura A (2000) Exercise of human agency through collective efficacy. *Western Psychologist*, 14 (1), 17–20.

*Barr S (2003b) *Global Action Plan: the potential role of NGOs in embedding sustainability; A working paper*. Department of Geography, University of Exeter, UK.

Barr S, Gilg A & Shaw G (2006) *Promoting sustainable lifestyles: A social marketing approach*. Final Summary Report for Defra. University of Exeter.
http://www.defra.gov.uk/science/project_data/DocumentLibrary/SD14005/SD14005_3524_FRP.doc

Bator, R & Cialdini R (2000). The application of Persuasion Theory to the Development of Effective Pro-Environmental Public Service Announcements. *Journal of Social Issues* 56(3), 527–541.

*Bedford T, Jones P & Walker H (2004) Every little bit helps: Overcoming the challenges to researching, promoting and implementing sustainable lifestyles. London: Centre for Sustainable Development, University of Westminster. Summary available online:
http://www.wmin.ac.uk/cfsd/reports/Sustainable_lifestyles_summary_report.pdf

Benseman J, Findsen B, Scott M (1996) *The fourth sector. Adult and Community Education in Aotearoa/New Zealand*. Palmerston North: Dunmore Press.

Boud D, Keogh R & Walker D (eds. 1985) *Reflection: Turning experience into learning*. New York: Kogan Page.

Brower M & Leon W (1999) *The consumer's guide to effective environmental choices: practical advice from the Union of Concerned Scientists*. New York: Three Rivers Press.

Brown G & McNamara R (2005) SLAH 6: monitoring evaluation and learning report. Sustainable Living at Home, Port Phillip Council, Melbourne, Vic.

Burgess J, Honson K & Bedford T (2003) (Un)Sustainable consumption. Chapter in: Berkhout, Leach & Scoones (eds) *Negotiating environmental change: New Perspectives from Social Science*. London: Edward Elgar.

Burningham K & Thrush D (2001) *Rainforests are a long way from here: the environmental concerns of disadvantaged groups: summary of findings*. York, UK: Joseph Rowntree Foundation.

*Cameron L D (2002) Promoting positive environmental behaviours through community interventions: a case study of waste minimization. Hamilton: Community and Economy Programme, Environment Waikato (Waikato Regional Council).

*City of Newcastle and Hunter Water (2006) Sustainable Living at Home Workshops. <http://www.newcastle.nsw.gov.au/go/sustainableliving>

*City of Port Phillip, Melbourne (2003). The Sustainable Living guide. See also websites <http://www.portphillip.vic.gov.au/slah.html> and <http://www.epa.vic.gov.au/ecologicalfootprint/caseStudies/portphillip.asp> (accessed Oct 2006)

Clinebell H. (1998) *Understanding and counseling persons with alcohol, drug and behavioural addictions*. Nashville, Tenn: Abingdon.

*Collins J, Thomas G, Willis R, Wilsdon J (2003) Carrots, sticks and sermons: Influencing public behaviour for environmental goals. London, UK: Demos & Green Alliance for Defra.

Cranton P (1994) *Understanding and promoting transformative learning: A guide for educators of adults*. San Francisco: Jossey-Bass.

Darnton A (2004) *Driving public behaviours for sustainable lifestyles*. London, UK: Central Office of Information/Defra,

*Department of Environment and Conservation (DEC) New South Wales (2004) The Environment and Ethnic Communities in 2004: A survey of the environmental knowledge, attitudes and behaviours of eight ethnic communities in NSW.

*Department of Environment, Transport and the Regions (1999) Are you doing your bit? (Leaflet published as PDF, previously displayed on DETR website) Stratford, UK: DETR

Department of the Environment, Food and Rural Affairs (Defra) (2005) Securing the Future: UK Government Sustainable Development Strategy. <http://www.sustainable-development.gov.uk/publications/uk-strategy/index.htm> (Accessed January 2006)

Delay R (1996) Forming knowledge: constructivist learning and experiential learning. *Journal of Experiential Education*, 19(2).

de Young, R (1986) Some psychological aspects of recycling. *Environment and Behavior*, 18, 435–449.

deYoung R (1989) Exploring the difference between recyclers and non recyclers: the role of information. *Journal of Environmental Systems*, 18, 341–351.

de Young, R (1990) Recycling as appropriate behavior: a review of survey data from selected recycling education programs in Michigan. *Resources, Conservation and Recycling*, 3, 1–13.

Dominguez J & Robin V (1996) *Your money or your life*. USA: Penguin Books.

*Donlon J & Condon L (2006) Measuring community engagement with sustainability: ‘Living for Our Future, Boroondara City’. Report to Department of Sustainability and Environment. National Centre for Sustainability, Swinburne University of Technology, Hawthorn, Victoria.

Dryzek J (1990), *Discursive democracy: politics, policy, and political science*. Cambridge, New York: Cambridge University Press.

*Edmeades M (2006) Know it? Live it! (newsletters) Sustainable Environment Team, Hamilton City Council. <http://www.hcc.govt.nz/knowitliveit>

Elgin, D (1993) *Voluntary simplicity: Towards a way of life that is outwardly simple, inwardly rich*. (Rev. Ed) New York: Quill.

*Elster J & Church C (2002) *Thinking locally, acting nationally: Lessons for national policy from work on local sustainability*. York, UK: Joseph Rowntree Foundation.

Festinger, L (1957) *A theory of cognitive dissonance*. Stanford: University of California Press.

Fishbein M & Ajzen I (1975) *Belief, attitude, intention and behavior: an introduction to theory and research*. Reading, MA: Addison-Wesley.

*Frame B (2004) The Big Clean Up: social marketing for the Auckland region. *Local Environment*, 9 (6), 507–526.

GAP - Global Action Plan USA (website, viewed Feb 2005)
<http://www.globalactionplan.com/programmes.html>

Gardner G T & Stern P C (1996 / 2002) *Environmental problems and human behaviour*. Boston, Mass: Allyn & Bacon (Pearson, 2nd Ed)

*Global Action Plan: the practical environmental charity (2006). Brochure, UK. See also website:
<http://www.globalactionplan.org.uk/>

Geller E S (1981) Evaluating energy conservation programs: is verbal report enough? *Journal of Consumer Research*, 8, 331–335.

Geller E S, Erikson J B & Buttram B A (1983) Attempts to promote residential water conservation with educational, behavioural and engineering strategies. *Population and Environment*, 6, 96–112.

Gershon D & Stern A B (1995) *Eco-Team: A program empowering Americans to create Earth-friendly lifestyles*. New York: Empowerment Institute.

Geurrie Y (ed, 1995) *Values and the environment: a social science perspective*. Brisbane: John Wiley.

Gibbons R (1998) Incentives in organizations. *Journal of Economic Perspectives*, 12 (4), 115–132.

Gilg A, Barr S, Ford N (2005) Green consumption or sustainable lifestyles? Identifying the green consumer. *Futures*, 37, 481–504.

Ginn F (2004) *Consuming passion: Ten years of Global Action Plan*. London: GAP.

Gladwell M (2000) *The tipping point: How little things can make a big difference*. Little Brown & Co.

*Government of Western Australia (undated, c 2001) *Travel Smart: helping to create a more sustainable WA by empowering people to use alternative to car for their transport needs*. Accessed at:
<http://www.sustainability.dpc.wa.gov.au/CaseStudies/travelsmart/travelsmart.htm>

Hampton & Hampton (1993) Practitioner research as continuing self-education. In: Miller N & Jones D J (eds) *Research: reflecting practice*. SCUTREA.

Hobson, K (2002) Competing discourses of sustainable consumption: does the ‘rationalisation of lifestyles’ make sense. *Environmental Politics*, 11(2), 95–120.

Hobson K (1999) *Sustainable lifestyles: Rethinking barriers and behaviour change*. London: University College Geography Dept. Environment and Society Research Unit paper. (Subsequently published as: Hobson K 2001. *Sustainable lifestyles: rethinking barriers and behaviour change*, Chapter 11 in Cohen & Murphy 2001, 191–209.)

Holdsworth M & Steedman P (2005) *16 pain free ways to help save the planet*. London UK: National Consumer Council.

Honey P & Mumford A (1982) *The manual of learning styles*. Berks: Ardingley House.

Hounsham, S (2006) *Painting the town green: how to persuade people to be environmentally friendly*. London, UK: Green Engage.

Huneke M (2005) The face of the un-consumer: an empirical examination of the practice of voluntary simplicity in the United States. *Psychology & Marketing*, 22 (7), 1–24.

Ingram R & Geller E 1975. A community-integrated, behaviour modification approach to facilitating recycling. *JSAS Catalog Selected Documents in Psychology*, 5, 327.

Jackson T (2005) *Motivating sustainable consumption: A review of evidence on consumer behaviour and behavioural change*. A Report to the Sustainable Development Research Network. University of Surrey, UK.
<http://www.sd-research.org.uk/documents/MotivatingSCfinal.pdf>

Jacobs H & Bailey J (1982/3) Evaluating participation in a residential recycling program. *Journal of Environmental Systems*, 12, 141–152.

Kaplan S (2000) Human nature and environmentally responsible behaviour. *Journal of Social Issues*, 56, 491–508.

Kolb D A (1984) *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ & London: Prentice Hall.

Kollmuss A & Agyeman J (2002) Mind the gap. *Environmental Education Research*, 8 (3).

Lakoff G (2005) *Don't think of an elephant: know your values and frame the debate*. Chelsea Green, USA.

Laroche M, Bergeron J, Barbaro-Forleo G (2001) Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, 18 (6).

*LSx: London Sustainability Exchange (2005) *Motivate London: motivating environmentally sustainable behaviour: case studies* (accessed October 2006)
http://www.lsx.org.uk/programmes/casestudies_page1566.aspx

*LSx: London Sustainability Exchange (2006) *The Motivation Kit: means of motivation and powers of persuasion*. Published on CD ROM. London, UK.

*Marrickville & City of Sydney Councils (2005) *The Watershed and Watershed Volunteer Education Programme* (<http://www.marrickville.nsw.gov.au> or <http://www.cityofsydney.nsw.gov.au/Environment/TheWatershedSustainabilityResourceCentre.asp>)

*McDonald A & Bielby B (2004) *Sustainable Households – A programme to encourage positive environmental action by householders*. New Zealand Association for Environmental Education, Conference Proceedings, 14–17 January 2004, Christchurch (CD).

McKenzie-Mohr D (2000) Promoting sustainable behaviour: An introduction to community-based social marketing. *Journal of Social Issues*, 56, 543–554.

McKenzie-Mohr D & Smith W (1999) *Fostering sustainable behaviour* (2nd Ed.). Gabriola Island, British Columbia: New Society (see also <http://www.cbsm.cm>)

Mezirow J (1991) *Transformative dimensions of adult learning*. San Francisco: Jossey-Bass.

*Ministry for the Environment (2003) *Measuring the national Reduce your Rubbish Campaign*. Report by Research Solutions. Wellington: MfE (see also <http://www.mfe.govt.nz/issues/waste/waste-pilot/conference-paper.html>)

Ministry of Transport (2006) *New vehicle emissions standards*. Wellington NZ.

<http://www.transport.govt.nz/visible-smoke-check/> (accessed 2006)

*Moreland Energy Foundation (undated) Home Greenhouse Audit Manual. Prepared for Cool Communities, Australian Greenhouse Office. Available on web at:
<http://www.greenhouse.gov.au/local/publications/audit.html>

Moxie Design Group (P Salmon, ed, with TNS Market Research) (2005) Project LOHAS: understanding 'Cultural Creatives' in New Zealand: Qualitative Research Report. Wellington.

*Natural Step Canada (2006) E-learning course:
http://www.naturalstep.ca/SBNS_FINAL_Jan302006/SBNS_Introduction.htm

*Newcastle City Council (2001) GAIN Plan: Greenhouse Action in Newcastle, New South Wales. See also: <http://www.deh.gov.au/minister/env/2005/mr08nov305.html>

Norwegian Environmental Home Guard (1994) Turning spectators into participants. Oslo.

*Northwest Earth Institute (2006) NWEI History
<http://www.nwei.org/pages/history2.html> accessed 3/10/2006

*North Sydney City, Willoughby City & Lane Cove Councils (2006) Footprints: tread lightly into the future- a regional environmental education programme. Report published on CD, obtained from Sustainability Programmes Division, Dept Environment and Conservation, Paramatta, New South Wales. (see also <http://www.northsydney.nsw.gov.au/footprints/>)

Ölander F & Thøgersen J 1995. Understanding consumer behaviour as prerequisite for environmental protection. *Journal of Consumer Policy*, 18, 345–385.

Page N & Czuba C E (1999) Empowerment: What is it? *Journal of Extension*. (Internet Journal viewed Feb 2005) <http://www.joe.org/joe/1999october/comm1.html>

PCE (2002) *Creating our future – Sustainable development for New Zealand*. Wellington: Office of the Parliamentary Commissioner for the Environment.

PCE (2004) *See change – Learning and education for sustainability*. Wellington: Office of the Parliamentary Commissioner for the Environment.

Petty R & Cacioppo J (1981) *Attitudes and persuasion: classic and contemporary approaches*. Dubuque, IA: William C Brown.

Petty, R & Cacioppo J (1986) *Communication and persuasion: central and peripheral routes to attitude change*. New York: Springer-Verlag.

*Poyzer P (2004) Eco-Teams in Nottingham. (Web-page visited Aug 2004 & Feb 2005) www.emra.gov.uk/s_d_success/ecoteams.asp See also Global Action Plan.

*Poyzer P (2005) *No Waste Like Home: the plan that will change your world*. UK: Virgin Books.

Pretty J & Frank B R (2000) Participation and social capital formation in natural resource management: achievements and lessons. In Proceedings, International Landcare 2–5 March 2000. Melbourne, Australia, (pp. 178–187).

Prochaska J O, DiClemente C C & Norcross J (1992) In search of how people change: Applications to addictive behaviours. *American Psychologist*, 47 (9), 1102–1114.

Prochaska J O, Norcross J C & DiClemente C C (1994) *Changing for good*. New York: William Morrow & Co.

Ray P H & Anderson S R (1996) *The cultural creatives: How 50 million people are changing the World*. USA: Harmony Books. See also: www.culturalcreatives.org/invitation.html

Rivers M-J, Lynch J (2001) *Koia!Koia! Towards a learning society*. The report of the Adult Education and Community Learning Working Party. Wellington: Tertiary Education Commission.

Robinson L (1999) Lessons from social marketing. Prepared for the Australian Association of Environmental Education Conference 1999
http://media.socialchange.net.au/people/les/social_marketing.html (accessed October 2005)

Robinson L (2002) What'sBest: a decision tool for choosing appropriate community education methods. http://media.socialchange.net.au/people/les/What's_best.pdf (accessed October 2005)

Rogers E (1995) *Diffusion of innovations*. 4th edition. New York: Free Press. (original was published in 1962: The Theory of Adoption and Diffusion of Innovations)

Rose C, Dade P, Gallie N & Scott J (2005) Climate change communications: dipping a toe into public motivation. London, UK: Campaign Strategy. Available at:
www.campaignstrategy.org/valuesvoters/climatechangecommunications.pdf (Accessed October 2006)

Rosenstock I M (1974) Historical origins of the health belief model. *Health Education Monographs*, 2, 328–350.

Ryan FF, McBurney I, Ray S (undated, c2005) *All hands on for Sustainability: the Sustainability Street Approach, Book One*. Arena Publishing for Vox Bandicoot (includes Wollongong & Moreland case studies). <http://sustainabilitystreet.org.au>

Schon D (1983) *The reflective practitioner: How professionals think in action*. London: Temple Smith / also Basic Books (Harper Collins)

Sheehan, P, Armitage C, Webbs T and Ravis A (2006) Does changing attitudes, norms or self-efficacy change intentions and behaviour? Economic and Social Research Council Report viewed 12 October 2006 at <http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/ViewAwardPage.aspx?AwardId=3544>

*Southern Metropolitan Regional Council (SMRC) (2005) Eco aims and GreenHouses Project. <http://www.greenhouses.org.au/> (accessed Oct 2006)

Spaargaren G & van Vliet B (2000) Lifestyle, consumption and the environment: the ecological modernisation of domestic consumption. *Society and Natural Resources*, 9, 50–76.

*Staats H J & Harland P (1995) The Eco-Team Program in the Netherlands: A longitudinal study on the effects of the Eco-Team Program on environmental behaviour and its psychological backgrounds.

Stern P C & Aronson E (eds. 1984) *Energy use: the human dimension*. New York: Freeman.

Stern P C, Dietz T, Abel T, Guagnan G A & Kalof L (1999) A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6, 81–97.

Stirling S (2001) *Sustainable education: re-visioning learning and change*. Totnes, UK: Green Books.

Sustainable Consumption Roundtable (2006) *I will if you will: towards sustainable consumption*. Sustainable Development Commission and National Consumer Council, UK.

Taylor R E & Allen W (2006) Changing household behaviours: learning for sustainability in urban communities. Paper submitted to NZ Royal Society, on-line social science journal (in peer review)

Taylor R E & Frame R (2005) Partnerships for sustainability: Effective practice? *Local Environment*, 10 (3), 275–298.

TEC - see Rivers M-J (2001)

*Tilbury D, Coleman V, Jones A & MacMaster K (2005) A national review of environmental education and its contribution to sustainability in Australia: Community Education – Key Findings. Canberra: Australian Government Department of the Environment and Australian Research Institute in Education for Sustainability (AIRES).

Triandis H C (1977). *Interpersonal behaviour*. Monterey, CA: Brooks/Cole.

*Uzzell D, Jackson T, Ogden J, Barnett J, Gatersleben B, Hegarty P, Muckle R & Papathanasopoulou E (2005) Choice matters: Alternative approaches to encourage sustainable consumption and production. Final Report to Defra, Environmental Psychology Research Group, University of Surrey, Guildford UK Available at:
http://www.defra.gov.uk/science/project_data/DocumentLibrary/SD14008/SD14008_3518_FRP.doc

*Wellington Regional Council (2003-2006) Be the Difference.
<http://www.bethedifference.gw.govt.nz/section1223.cfm> (accessed Oct 2006)

Witmer J & Geller E (1976). Facilitating paper recycling: effects of prompts, raffles and contexts. *Journal of Applied Behavioral Analysis*, 9, 315–322.

*Woking Agenda 21(2005) *Greener Homes guide*. 54-p brochure (web version at:
<http://www.woking.gov.uk/environment/la21/greenhome>)

Wong J L (1998) Ethnic community environmental participation In: Warburton D (ed.) *Community and sustainable development* (pp. 218–228).London: Earthscan.
