

Being Smart and Being Green: Entrepreneurial Innovation in Challenging Times

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Abstract:

In difficult times business operators are looking for clever and affordable ways to grow their enterprises. This paper seeks to make a contribution to a better understanding of proactive environmental and innovation strategies for SMEs and the interaction between demand and supply towards sustainable and innovative business practices. The paper discusses the combined outcomes of the exit survey of a greening small business 2008 pilot program and the entry survey for the 2009 online training and networking version of the program, which fuses environmental, business and ICT-enabled skilling to enhance both SME entrepreneurship and innovation. The study suggests that SME business sustainability cannot be reduced to an oversimplified business case and that pro-environmental strategy adoption and behaviour, and particularly behavioural change, is highly complex. The outcomes of this research are expected to contribute to good practice in environmental and innovation skilling for SMEs, especially skilling that differentiates between supply and demand side skilling and brings together the two sides in a proactive resource acquisition, knowledge transfer and networking environment.

Keywords: environment, behaviour, green entrepreneurship, SME skilling, green practices; environmental motivations.

Introduction

Placing today's social, economic, and cultural challenges, as well as environmental ones, at the core of a company's strategy is no longer mere lip service; it's considered the key to sustained success (Werbach, 2009).

The movement toward environmentally responsible enterprises is growing worldwide. Driven by a desire to integrate corporate responsibility and sustainability principles into their businesses, many entrepreneurs are finding that running a green enterprise is a sound business proposition because they can tap into new as well as existing markets. Indeed, regulation, the Corporate Social Responsibility (CSR) agenda, economic instruments and enhanced efficiency have emerged as key drivers in today's economy (Bansal & Roth, 2000). With governments increasingly interested green jobs to create new economic opportunities in response to the twin challenges of climate change and economic downturn economically difficult times (Environment Victoria, 2009), supporting structures are being put in place to assist entrepreneurs in benefiting from the green enterprise markets and heightened consumer environmental consciousness.

Much has been written about corporations going green, but much less is known about small and micro business behaviour vis-à-vis green entrepreneurship. Green enterprise holds many possibilities for both the environment and for entrepreneurs. It can protect natural resources, lower operating costs through reduced waste and pollution, and contribute to more sustainable community economic development, while giving entrepreneurs a new and different edge to succeed in the market. So-called proactive environmental strategies can minimise a firm's negative impact and maximise its positive effects on the environment (Lepoutre & Valente, 2007). Lepoutre (2008, p.46) defines proactive environmental strategies as *"the continuous process of resource building, selection and deployment for value creation and distribution, by navigating through and interacting with the structural and social conditions that influence their value, with the purpose to prevent negative effects, or create positive impacts on the natural environment, beyond what is legally required or accepted as standard practice"*.

Based on the results of an extensive literature review, Taylor & Walley (2003) define sustainable entrepreneurship as innovative behaviour of actors in the context of sustainability. Isaak (1998) uses the expression 'ecopreneur' or individuals who pursue social and ecological goals by means of profit orientated green businesses. The latter author presents a 'green-green time and risk reduction for sustainable development' learning curve that envisages society moving from decadence (preoccupation with instant present gratification and high risk-taking), through reformism (greening of existing businesses), and creation (epitomizing green values, green screens, green careers) to green-green ecopreneurship – e.g., *'radically reducing risk to the natural environment by supporting only green-green ecopreneurship and sustainable economic growth'* (Isaak, 1998, p.24).

In the process of defining what makes a green entrepreneur, researchers have attempted to understand why firms embrace environmentally friendly practices (e.g., Bansal and Roth, 2000). Studies have identified regulatory compliance, competitive advantage, stakeholder pressures, ethical concerns, critical events and top management initiatives as motives for [corporate] environmental initiatives and innovation (Paulray, 2008; Bansal and Roth, 2000). Conversely, while far-sighted corporations may appear to be on the road to making environmental innovation a strategic priority, in reality managers are often unsupportive of eco-innovation, their firms' sustainability policies notwithstanding. In other words, there often is a direct conflict between a firm's espoused environmental policies and their [manager's] behaviour (Meisner Rosen, 2001).

This paper provides an overview of an Australian government sponsored green entrepreneurship program entitled *SmartGreen: An Entrepreneurial Approach to Greening Small Business* and highlights the combined outcomes of the exit survey of a greening small business 2008 pilot program and the entry survey for the 2009 online training and networking version of the program, which fuses environmental, business and ICT-enabled skilling to enhance both small business entrepreneurship and innovation. In particular, this paper focuses on entrepreneurial behaviour to greening their business and asks whether there were any notable facts pertaining to the adoption of green practices by women entrepreneurs.

SmartGreen

Funded as a two-year program by the Australian government and designed as a partnership between the regional City of Ballarat, the Committee for Ballarat and the University of Ballarat's Centre for Regional Innovation & Competitiveness and National Centre for Sustainability, the premise for the *SmartGreen: An Entrepreneurial Approach to Greening Small Business* program was that the greening of a small business not only depends on an awareness and demand for environmental innovation by potential users, but also on the supply of expertise and technology from those businesses who supply green products and services.

Benchmark levels of environmental efficiency vary significantly between companies, between regions and between industries. But why? It is partly because of different levels of awareness of users, but is also a reflection on the availability and strength in the supply and provision of environmental expertise by specialist providers. Businesses wanting to become environmentally more sustainable are limited in a similar way.

Thus there are two significant issues this program addresses. One is the economic and moral pressure for businesses of all sizes to go green and reduce their environmental footprint, but who do not necessarily know where to start, how to go about greening their business or who to engage to help them green their business. The other is the need to boost capacity, expertise and innovation on the supply side to ensure there is sufficient and high quality assistance available to help businesses to become more environmentally sustainable. Based on this design, anticipated program outcomes include benefits for both the demand and supply side.

On the supply side, through a process of technical and entrepreneurship training we see a growth of capability and ultimately a growth in these businesses. These businesses will 'push' green services and awareness after the completion of this program and work with users to develop the cluster through innovation and developing business networks. On the demand side, we see improved resource use, greater efficiency and business growth driven by lower costs and improved resource efficiency.

Building on the above premise, the program had two major aims: (1) development of a comprehensive program of entrepreneurial training and mentoring to increase supply-side capability, and (2) through a process of auditing and training of demand-side businesses the program informs regional businesses of the efficiency gains that can be made from going green and identifies and increases the demand for these services. The program then clusters available expertise, information and learning in the MySmartGreen™ portal to provide access to information, training, green products and services and encourage small businesses across the region to work towards a Green Cluster Code of Practice, whereby firms commit to excellence in sustainability through sustainable development practices, partnerships, and continual improvement. The Green Cluster Code of Practice is aligned with existing environmental management approaches and designed to provide firms with an applicable base towards future accreditation such as ISO 14000, 14080 and 14068.

In Year 1 (2008) a pilot program was rolled out to 30 micro and small to medium enterprise (SME) businesses, targeting a mix of demand-side and supply-side micro and small business suppliers of green products or services. Based on established entrepreneurship objectives, the program provided nine learning modules in business planning, marketing, risk management, service development and expansion of client base, environmental compliance training, technology and knowledge acquisition, collaboration with other suppliers of green products/services, and identification of best practice. The in-depth training and mentoring program was delivered over a 12-months period, during which participating businesses developed an environmental action plan (EAP). Participants were equally divided in terms of gender and included both manufacturing and service sector industries.

During the course of Year 1, the project team designed and built the SmartGreen portal and start collating the content for MySmartGreen online (www.mysmartgreen.com). The portal supports the information generation and networking component of this project. Portal development was also based around flexible delivery of Year 1 workshop content and related Green Cluster Code of Practice objectives. By using a clustering and social networking approach, an online learning environment and business-to-business (B2B) community was established whereby small business

operators are able to access business and best practices knowledge towards triple bottom line outcomes for their individual businesses. In Year 2 of the program (2009) an awareness raising program was set up to target and enrol a wider catchment of SME businesses. Online forum discussions, EAP support and mentoring are made available to businesses as required. To date 38 businesses have enrolled, approximately half of which are women-led businesses.

Prior to providing highlights of the combined results of these methods, the paper briefly reviews key behavioural literature that underpins the design of the SmartGreen entrepreneurship program.

Behavioural Literature

The energy crisis in the USA led to an increased interest in understanding means through which households could reduce their energy consumption to cope with the rapid increase in energy costs (Stern, 2002), in programs often funded by the US Department of Energy and the National Academy of Sciences under the direction of Paul Stern. A number of recent literature reviews summarise the studies conducted in this area (cf. Lutzenheiser, 1993; Abrahamse et al, 2005; Wilson & Dowlatabadi, 2007), which the reader is referred to for further details of studies in this area.

The ecopreneurship and environmental entrepreneurship literature tends to focus on innovative behaviour of single actors in business as a core objective of competitive advantage. Thus, green entrepreneurs are those that identify market opportunities and successfully implement innovative approaches to their product or service. Thus, green entrepreneurs identify environmental innovations and their market opportunity and successfully implement these innovations resulting in new products or services (Dixon & Clifford, 2007).

Building on the premise that green entrepreneurship in micro and small to medium enterprises (SMEs) is directly linked to single actor actions, e.g. the firm's owner or manager, this paper explores environmentally significant behaviour as a joint function of psychology, social structures, economic, technology and other variables (Stern, 1992). Wilson and Dowlatabadi (2007) make the distinction between the personal and the contextual in their review of energy use behaviour, drawing on Guagnano, Stern and Dietz's (1995) "attitude-behaviour-context" model of pro-environmental behaviours.

Individual models of behavioural change

The study of individual behavioural change has long been of interest across a variety of fields interested in influencing the decisions of individuals. Marketers are interested in influencing product choices, public health practitioners in influencing health-related behaviours, and, in the case of this paper, governments and environmentalists in influencing business choices of pro-environmental behaviours. By far the most common model used as the basis for assessing the effectiveness of such interventions is the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1976) and its extension, the Theory of Planned Behaviour (TPB) (Ajzen, 1992).

The theory of reasoned action posits that certain individual behaviours can be seen as the result of a reasoned decision-making process based on the development of intent to act in a particular way, and the subsequent fulfilment of that intention. As such, the theory focuses on the prediction of behavioural intentions, particularly behavioural norms (the belief that engaging in the behaviour will fulfil normative expectations of the individual) and attitudes towards the behaviour. The extension of the model, the theory of planned behaviour (Ajzen, 1992), also incorporates perceived control over the completion of the behaviour as an additional predictor, to account for those situations where the individual's capacity to engage in the behaviour may not be entirely within their control.

There are numerous studies which have used the TRA/TPB model to examine pro-environmental behaviours, although a recent meta-analysis of TPB results did not identify any specific studies of residential energy use is less common (Wilson and Dowlatabadi, 2007). In this meta-analysis, the TPB was found to explain 27 percent of the variance in behaviour, and 39 percent of the variance in behavioural intentions, suggesting an important role for the study of psychological determinants of behaviours.

The inclusion of environmental attitudes has largely been based on the New Environmental Paradigm (Dunlap and Reilly, 1978) and its revised version, the New Ecological Paradigm (Dunlap et al, 2000), known generally as the NEP. The NEP examines environmental attitudes with a combination of 15 items, asking questions around common beliefs, and show that these items

correlate to form a uni-dimensional scale which has been used extensively in the literature for further analysis and understanding individual decisions in context.

Methodology

The methodology adopted for this study was a combination of two surveys and in-class attendance and observation during the Year 1 program.

In order to develop a long-term sustainable training program from the pilot and to measure the impact on behaviour change by individuals and their firms, Year 1 participants were asked to record their program experiences after each workshop and take an exit survey after completion of the Year 1 in-depth program. The Year 1 program exit survey consisted of an open-ended questionnaire designed to collect responses as to the usefulness of the content provided (with a view of transferring content to the Year 2 SmartGreen online environment), measure overall value of time spent at the SmartGreen workshops, measure the value of mentoring in terms of the development of an environmental action plan (EAP), and gauge the impact on behavioural change and viewpoints based on learning and in-class interaction.

The Year 2 SmartGreen online entry survey is not mandatory. Program participants have a choice of paying the full fee (\$180+GST) to access and participate in the online program or be eligible for a \$30 discount by filling in the online entry survey conducted via the SmartGreen website. The predominantly closed-ended entry survey was designed to gauge firms' current behaviour and intended behaviour, which at the end of the program (late 2009) will assist in evaluating firms' actual behavioural change after program completion.

The survey was conducted via the web, using LimeSurvey data collection software. The Year 2 online survey, which continues to be up and running, consists of a series of questions, including questions adopted from the New Ecological Paradigm (NEP), asking participants questions such as "It is possible to have economic prosperity and ecological sustainability" to establish to which extent they are engaged in sustainable practices.

In order to understand the means through which participants move towards more environmentally sustainable behaviour and the effectiveness of such activities in influencing change in their business, there was a need to establish the current patterns of behaviour common among participants. Survey participants were asked questions about their knowledge of environmental issues; their sources of information and frequency of use; use of environmental products; changes in behaviour over the past two years and anticipate change in behaviour over the next two years. Respondents were asked "How much do you think you will change your behaviour to live more sustainably" in the next 2 years and the next 2 years on a four point scale from "Not at all" to "Major Change". Respondents could also indicate if they were uncertain about the likelihood that they would change their behaviour.

Environmental behaviour is also likely to be influenced by attitudinal factors, such as the level of importance of environmental beliefs, and the normative beliefs individuals hold about the expectations of "referent others" such as competitors or clients. Respondents were asked questions such as "behaving in a sustainable way is important to my enterprise" to gauge the strength of their normative and attitudinal beliefs, on a five point scale from "Strongly Disagree" to "Strongly Agree".

The survey also poses a set of questions on entrepreneurial orientation to gauge the level of entrepreneurial risk taking vis-à-vis changing to green businesses practices such as sourcing new products and supply chains. These questions were designed to gauge the level of risk-taking among participating entrepreneurs by looking at new products and services and posing questions such as "In general, my enterprise favours a strong emphasis on providing tried and true products".

Given the small sample, it was not possible to use a statistical package to analyse results and undertake any statistically significant tests. Instead, the dataset generated by the LimeSurvey software was used to create an overview of results.

Findings

At the time of this writing, of the 38 firms which enrolled in the Year 2 online program, only nine firms chose to go the discount/survey route, five of which were women-led businesses. Given that entry survey numbers are small, an indicative reporting approach was adopted for this paper, as displayed in the tables below, which are displayed by gender. In the discussion section, indicative results will be discussed and fused with exit survey data of the Year 1 SmartGreen program.

Table 1 – Number of Employees

	Femal eMea	Mal eMea
Full time	8	3

Table 2 – Turnover Last 12 months

Month	Femal eCoun	Mal eCoun
less than \$50,000-	1	0
\$50,000- \$200,000-	2	2
\$200,000- \$500,000 -	0	0
\$500,000 - \$1million	1	0
\$1million- \$5million	1	1

Table 3 – Information Sources about Environment & Sustainability

	Femal eYe	Mal eYe
Does your enterprise source information about the environment and sustainability?	4	3
Information of sustainability is from:	Coun	Coun
The internet/the web	4	3
Workshop	3	
Pamphlets newspapers and other printed ma terial		2
Word of mouth from friends	3	0
Contacts	0	0
Television	0	1
Radi	1	0

Table 4 – Frequency of Green Activities

5=always 1=never	Femal		Mal	
	Mea e	Mod	Mea e	Mod
Buy energy efficient appliances even if it costs more	4.0	4	4.0	5
Buy from sustainably renewable sources even if it costs more	3.6	4	4.0	3
Recycle waste produced by your enterprise	4.4	5	4.7	5
Use recycled products	3.4	4	4.0	3
Conserve water in your enterprise	4.2	4	3.7	2
Reduce appliance use in your enterprise to save energy	4.0	4	3.7	2
Reduce energy use for heating and cooling in your enterprise	3.6	4	4.0	5

Table 5 – Behavioural Attitudes

5=agree 1=disagree	Femal		Mal	
	Mea e	Mod	Mea e	Mod
Behaving in a sustainable way is important to my enterprise	5.0	5	5.0	5
People who are important to me believe my enterprise should behave in a sustainable way	4.6	5	5.0	5
Joining others who are behaving in a sustainable way is important to me	5.0	5	5.0	5

Table 6 – Change in Operating more Sustainably

5=uncertain 4=major change 1=no change	Femal		Mal	
	Mea e	Mod	Mea e	Mod
In the past 2 years	3.2	3	3.3	3
In the next 2 years	3.0	3	3.7	4

Table 7 – Methods to make Green Changes

5=always 1=never	Femal		Mal	
	Count	Mod	Count	Mod
Discounts for products	3	3	3	3
Information about sustainable practices	4	4	2	2
Advice and assistance from trades people on installing products	3	3	3	3
Examples of working systems	4	4	3	3
Local business support	2	2	2	2
Business sustainability education and training	3	3	2	2

Table 8 – Knowledge of Environmental Issues

5=high 1=low	Femal		Mal	
	Mean	Mod	Mean	Mod
Energy conservation	4	4	4	3
Water conservation	4	4	4	4
Recycling and waste reduction	4	4	4	3
Biodiversity and natural resource management	4	4	4	3
Climate change	4	4	4	4
	0	0	3	3

Table 9 – Common Beliefs

5=agree 1=disagree	Femal		Mal	
	Mean	Mod	Mean	Mod
It is possible to have economic prosperity and ecological sustainability	5	5	5	5
Climate change is not a significant issue for my enterprise	2	1	1	1
Energy conservation should be led by government	5	4	4	3
My enterprise buys appliances with high energy-efficiency star ratings even if they cost more	2	0	0	0
Energy conservation in businesses saves money	4	4	3	4
The appearance of my enterprise's establishment is more important than energy conservation	4	5	7	5
People who advocate energy-conserving behaviour only do so because it is trendy	6	0	0	0
My enterprise would be willing to invest money in alternative energy sources to help protect the environment	1	1	2	1
Energy conservation is a waste of time as most power is used by bigustr	2	1	1	1
Protecting the environment should be given priority even if it may cause slower economic growth and some loss of jobs	5	5	5	5
Climate change is affecting Australia right now	5	5	5	5
Climate change will directly affect Australia in the next 5 to 20 years	4	5	5	5
The changes occurring in the climate are the result of human action	4	5	5	5
	5	5	5	5
	6	0	0	0

Table 10 – Cause of Climate Change

5=agree 1=disagree	Femal				Mal			
	major cause		minor cause		major cause		minor cause	
	n	count	n	count	n	count	n	count
Use of fuel for electricity generation from other fossil fuel	5	5	0	0	2	2	1	1
Agriculture and deforestation	2	2	2	2	2	2	1	1
Climate change items we buy	4	4	1	1	1	1	2	2

Table 11 – Entrepreneurial Attitudes

5=agree 1=disagree	Femal		Mal	
	Mean	Mod	Mean	Mod
In general, my enterprise favours a strong emphasis on providing tried and true products and services	3.6	4	5.0	5
The number of new lines of products or services during the past 3 years	3.8	4	4.0	4
The degree of changes in product or services line during last 3 years	4.2	4	3.7	4
In dealing with its competitors, my enterprise typically initiates action which competitors then respond	4.0	3	3.3	3
In dealing with its competitors, my enterprise is very often the first enterprise to introduce new products or services, etc.	4.0	4	3.7	4
In dealing with its competitors, my enterprise typically adopts a competitive, "undo-the-competitors" posture	3.4	3	4.0	3
In general, my enterprise has a strong preference for high risk (with chances of very high returns)	3.6	4	4.3	4
In general, I believe that owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve enterprise's objectives	3.6	3	3.3	4

Discussion

As observed above, the numbers in the entry survey did not allow for in-depth analysis and the following discussion is based on indicative results.

Overall, respondents indicate that green practices are important to their enterprise. Negligible differences could be detected between genders in terms of attitudes towards the environment and related business practices. Being seen to behave in a sustainable manner was important to both men and women. There was some gender difference in entrepreneurial orientation and level of risk taking vis-à-vis new business practices, with women generally inclined to take less risk than male entrepreneurs favouring a strong emphasis on tried and true products and services, which corresponds with findings on the propensity of risk taking in the literature (Meier & Masters, 1988). Neither gender was looking at major changes in their business over the next two years and looked at government to solve environmental issues.

Participants indicated that they sourced their environmental information from the Internet, followed by workshops and printed literature. Recycling and water conservation were the most common green activities undertaken by participating entrepreneurs. Similarly, both genders rated their knowledge of environmental issues, including climate change, energy and water use as relatively high, although females' ratings of environmental causes such as fossil fuels, energy use and purchases were higher than males. Women were more willing to invest in alternative energy to help the environment, while men were more inclined to buy products or services from sustainably renewable sources even if it costs more.

Reflecting on the outcomes of the 2009 entry survey, it is important to consider potentially mitigating factors pertaining to these results. Year 2 participation SMEs are yet to complete the SmartGreen program and many have not have started environmental action plans for their enterprise. As such, we can only consider survey responses as self-reported intentions that may have a stronger link to attitudes than reality (Stern, 1992). Moreover, people often overestimate the benefits of their behavioural choices and methods of self-monitoring can be ineffective with social desirability influencing reporting. Similarly, environmental awareness does not equate to actual impact on behaviour, which in turn can result in misdirected action (Gaterseleben et al, 2002). Thus, professed pro-environmental values, attitudes and knowledge will not necessarily translate into behavioural change.

The study then went on to compare Year 2 outcomes to the Year 1 results, which were a combination of the responses of the Year 1 exit survey, program participation records and in-class observations of participants during the SmartGreen 2008 program. Year 1 businesses attended nine (monthly) workshops, designed and completed individual environmental action plans for their business. Quantative data collected during the Year 1 program predominantly focused on the optimisation of program content and delivery, which fall outside of the scope of this paper. Salient qualitative responses captured in the exit survey are highlighted below.

Whereas participating women saw themselves as agents of change in leading the greening of their own business into profound social change, men saw it as an opportunity for operational savings, providing comments such as: *"The owners and management are committed to a process that will minimise the impact of these activities on the environment"*. Female responses included [referring to some of the male participants]: *"Are the participants all committed to being 'green entrepreneurs' or is it mainly for business building of conventional businesses who wish to tap into the green market, but may not be committed to 'green' direction in their product/manufacturing?"*

Comments on whether the SmartGreen program changed their business practices by men included *"I feel we didn't get down to the real reason most people are attending - how they can make \$\$ out of sustainability"*. Female participants: *"SmartGreen was a catalyst for us to implement our waste management system. The program encouraged us to make more environmentally friendly decisions in relation all aspects of our business"*.

Comments by participants on the value of the course content included *"the program made me think, but it would have been useful if we had more in the same industry."* Female participants' comments included: *"What I learnt is that it doesn't cost a lot"*; *"being informed is being armed"*; *"knowing what questions to ask is half the battle"*; *"a standard to work towards makes life easier"*; and *"I feel good about where my business is headed"*. All participants found the green marketing component particular useful as a tool to differentiate their company as a green business.

Exit survey comments by participants on the value of networking during the course suggest that bringing together supply and demand is particularly useful for sourcing green products and services towards green supply-chain management. Comments included: *"Meeting other business people was great, learning what is available in our area is always useful"* and *"SmartGreen has provided an opportunity to discuss environmental issues affecting organisations and to network with like-minded folks in the local area"*.

The above quotes highlight a variety of responses from businesses. The study suggests that women's motivations differ from male entrepreneurs in pursuing green business practices and participating in green networking opportunities, but the sample was too small for a detailed analysis of differences between male and female entrepreneurs, manufacturing or service sector businesses or whether the development of an environmental action plan does in fact mean that the plan is implemented. This in turn suggests that SME business sustainability has many aspects, cannot be reduced to an oversimplified business case and that pro-environmental strategy adoption and behaviour, and particularly behavioural change, is highly complex.

The program has affirmed that there are benefits from green business skilling that differentiates between supply and demand side skilling and brings together the two sides in a proactive resource acquisition, knowledge transfer and networking environment. Conversely, while most micro and SME firms appear willing to embrace entrepreneurial approaches to modify their business policies towards pro-environmental management and 'green' innovation, individual behavioural choices and operational conditions may hinder successful management of key processes that lead to green innovation.

Conclusion

This paper has discussed the combined outcomes of the exit survey of a greening small business 2008 pilot program and the entry survey for the 2009 online training and networking version of the program, which fuses environmental, business and ICT-enabled skilling to enhance both SME entrepreneurship and innovation. The study's initial findings suggest that SME business sustainability cannot be reduced to an oversimplified business case and that pro-environmental strategy adoption and behaviour, and particularly behavioural change, is highly complex.

In reviewing above outcomes in light of the Theory of Planned Behaviour (Ajzen, 1992), which focuses on innovation attributes for attitude formation and communication, it appears that individual knowledge, awareness, intention and behaviour are closely related and that different information and communication channels/networks do influence decision making processes. Thus, knowledge gathering and entrepreneurial orientation are important determinants for the uptake of green entrepreneurship in small business environments. While firms confirmed that being seen to be green was important to them, and that they were willing to buy from sustainably renewable sources even if it costs more, green supply chains and networks take a long time to be developed, which may lead some firms to decide to exclude the environmental variable in their purchasing decisions.

Considering ecology as a source of change and innovation may be theoretically sound, but in practice may well be moving target on both the demand and supply side. Indeed, what was acceptable behaviour in the past is not considered sustainable today and what is green today may not be green in the future. Thus, maintaining environmental performance requires continuous incremental change, which can be particularly challenging for micro and small enterprises.

In reflecting on results of this study and in making a contribution to good practice in environmental and innovation skilling for SMEs, the authors suggest that environmental skilling:

- Differentiate between supply and demand side skilling;
- Bring together the two sides to proactively stimulate frequent information and knowledge transfer and networking towards sustainable resource acquisition and the establishment/merging of green supply and value chains;
- Stay current on regulations, green values and marketing trends from both the supply and demand side (including business-to-business and end customers);
- Use market incentives to address standards and relationships with stakeholders (suppliers, customers, public institutions);
- Integrate ecological issues with behavioural patterns to foster in-firm adoption of green values and practices;
- Engage firms publicly (e.g., in an online environment) and on an ongoing basis to monitor implementation of environmental action plans, capture/share success stories, stimulate the growth of a green industry in the region; encourage collaborative new product development and innovation; and
- Conduct ongoing evaluation of the skilling program to ensure it is flexible and remains targeted to changing needs.

This is a relatively new and timely area of research, so many questions remain and many new questions have arisen. There is much scope for further research on what motivates today's entrepreneur to take up green practices and a need to expand our understanding of why and how SME firms embrace environmentally friendly practices and networks. There are questions around whether gender differences impacts this trajectory; what impacts the rate of adoption of green practices and whether this is industry-specific; how we can utilise Web 2.0 technologies and social networking to influence green supply chain formulation and green purchasing, to name but a few. This study will be ongoing and once the dataset is expanded, it is anticipated that a more in-depth analysis will be provided to help address some of these questions.

References:

- Abrahamse, W., Steg, L., Vlek, C. & Rottengather, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of Environmental Psychology*, 25, pp. 273-291
- Ajzen, I. (1992). The Theory of Planned Behavior, *Organizational Behavior and Human Decision Processes*, 50(2), pp. 179-211
- Bansal, P. & Roth, K. 2000. Why companies go green: a model of ecological responsiveness, *Academy of Management Journal*, 43(4), 717.
- Dixon, S. & Clifford, A. 2007. Ecopreneurship – a new approach to managing the triple bottom line, *Journal of Organizational Change Management*, 20(3), 326-345.
- Dunlap, R. and Van Liere, K. (1978). The New Environmental Paradigm: A proposed measuring instrument and preliminary results. *Journal of Environmental Education*, 9, pp. 10-19
- Dunlap, R., Van Liere, K., Mertig, A. & Emmet J., R. (2000). Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues*, 56(3), pp. 425–442
- Environment Victoria. 2009. Victoria – *the Green Jobs State: Seizing the Opportunities*, Melbourne: Environment Victoria.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison—Wesley.
- Gatersleben, B., Steg, L., & Vlek, C. (2002). Measurement and determinants of environmentally significant consumer behavior. *Environment and Behavior*, 34(3), pp. 335-362.
- Guagnano, G., Stern, P. & Dietz, T. (1995). Influences On Attitude-Behavior Relationships: A Natural Experiment With Curbside Recycling, *Environment and Behavior*, 27, pp.699-718
- Isaak, R. (1999): *Green Logic: Ecopreneurship, Theory and Ethics*. West Hartford: Kumarian Press.
- Lepoutre, J. 2008. *Proactive Environmental Strategies in Small Business: Resources, Institutions and Dynamic Capabilities*. Unpublished Thesis, Gent University.
- Lepoutre, J. and Valente, M. 2007. *A resource-based perspective on small business proactive social and environmental strategies*. Paper presented at Ivey School of Business, London, Ontario, Canada.
- Lutzenheiser, L. (1993). Social and behavioural aspects of energy use. *Annual Review of Energy and Environment*, 18, pp. 247-289
- Meier, R. & Masters, R. (1988). Sex Differences and Risk-Taking Propensity of Entrepreneurs. *Journal of Small Business Management*, Vol. 26, 1988
- Meisner Rosen, C. (2001). Environmental Strategy and Competitive Advantage: An Introduction. *The California Management Review*, Spring 43(3), pp.8-15.
- Paulray, A. (2008). Environmental Motivations: a Classification Scheme and its Impact on Environmental Strategies and Practices, *Business Strategy and the Environment*, accessed online 18/08/09 from http://www.mysmartgreen.com.au/members/resources/EnvironmentalMotivations_a_classificationscheme.pdf
- Stern, P. (1992). Psychological dimensions of global environmental change, *Annual Review of Psychology*, 43, pp. 269-302.
- Stern, P. (2000). Toward a Coherent Theory of Environmentally Significant Behavior, *Journal of Social Issues* 56(3), pp. 407-424.
- Stern, P., Dietz, T., Abel, G., Guagnano, A. & Kalof, L. (1999) A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism, *Human Ecology Review*, 6(2), pp. 81-97.
- Taylor, D. & Walley, E. (2003). *The Green Entrepreneur: Visionary, Maverick or Opportunist?* Manchester Metropolitan University Business School Working paper Series Online ISSN 1478-8209, retrieved 19/08/09 from <http://www.ribm.mmu.ac.uk/wps/papers/03-04.pdf>
- Werbach, A. 2009. *Strategies for Sustainability*. New York: Perseus.
- Wilson, C. and Dowlatabadi, H. (2007) Models of decision making and residential energy use. *Annual Review of Environment and Resources*, 32, pp. 169-203.

