Insights into sustainability change management from an organisational learning perspective: Learning from SME sustainability champions[1]

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Background

Although the authors acknowledge that there are difficulties in pinning down the concept of sustainability, for the purposes of this paper, sustainability is seen as sustainable profits acquired through well planned, socially and environmentally sensitive practices (Elkington 2001; Kiuchi and Shireman 2001). People, profit and the environment is therefore integral to defining sustainability in this manner.

Despite the fact that: at least eighty percent of all global enterprises are considered small to medium sized enterprises (SMEs) (OECD 2002), SMEs account for at least 70% of the world's production (O'Laoire 1996), SMEs' importance to national economies, SMEs contribute more than a third of all pollution, the topic of managing change for environmental sustainability (ES) is still very much unexplored (Hillary, 2000). Compared to research in large organisations, research on SME sustainability is underdeveloped, limited and fragmented (Fenwick 2007). Furthermore, SMEs differ from their large counterparts in regard to innovation and organisational change processes (Bos-Brouwers 2009). Some of the reasons identified in the literature are the low degree of formalisation, lack of public visibility and low general reporting priorities of SMEs (Bos-Brouwers 2009). In addition, SMEs do not necessarily have the funds to employ ES managers, often do not fully understand ES and are still in the very early stages of adopting and planning for ES (AIM 2008). Despite this evidence, SMEs tend to be largely unaware of the importance of sustainability, are suspicious of benefits that could be derived through self-regulation and the management tools that could provide valuable support in improving the firm's sustainability performance (Cote, Booth and Louis 2006). It seems that despite the increased awareness surrounding ES issues and growing pressure on SMEs to adopt ES practices, there is little understanding of the management processes and practices necessary for SMEs to successfully implement ES change initiatives.

In this regard, there is a dearth of studies in the SME sector, focusing on change driven by ES developmental goals in the achievement of sustainability outcomes (Rejeski 1995; Starik and Marcus 2000). Research on this topic area focuses predominantly on large firms, for example, studies by Epstein (2008) and Dunphy, Griffith and Ben (2007). Furthermore, existing studies on smaller enterprises have been descriptive and output-focused in nature, focusing mainly on issues such as clean production measurement, awareness of environmental regulations, sources of advice and types of managerial response, or with general attitudes to environmental action and regulations (Bansal and Bogner, 2002). Amongst SMEs, the topic of managing change for sustainability is still very much unexplored, with only a few studies examining issues, such as strategic thinking (Will 2007), intent (Worhington and Patton 2005) , strategy development (Moore and Manring 2009), commitment and on-going improvement (Stone 2006a) and leadership, support communication and involvement (Stone 2006b). Furthermore, Stone (2006) found that while individual businesses showed unique sets and manifestations of sustainability factors, issues such as the lack of commitment; lack of leadership, particularly by top-level managers; lack of internal support for team members; poor internal communication and failure to extend staff involvement beyond the project team, were found to limit the uptake of environmental sustainability initiatives.

In addition to this scenario, the topic of organisational learning within the context of environmental sustainability in SMEs, is still an unexplored area. Existing literature on this topic area in the SME context has been mainly conceptual in nature (Jamalie 2006). Therefore, by drawing on the experiences of environmental sustainability award winning SMEs, this study has the potential to make a valuable contribution to filling a theoretical and practical gap on environmental sustainability change management in SMEs.

We argue and demonstrate in this paper that our proposed framework of managing ES change in the SME context fits with the full range characteristics of a learning organisation (LO). We also argue that by integrating the characteristics of a learning organisation in their ES journeys, SMEs could significantly benefit from the continuous learning that forms part of the ES journey.

What makes the concept of the 'learning organisation' particularly relevant to the implementation of ES in SMEs, is the emphasis on the continual learning of 'people' through the enhancement of their capacity to generate the outcomes they really aspire to; where novel and extensive ideas through patterns of thinking and behaviours are cultivated; where shared aspirations is set free; and where 'people continually learn how to learn together' (Senge 1990, p. 3).

In view of the discussion above, the **objective** of this paper is to reflect upon the ES change journeys of twelve sustainability SME champions and analyse how these firms optimise ES by adopting the characteristics of a learning organisation.

The framework outlined in this paper illustrates how the study participants have brought about an iterative, critically reflective cycle of learning. The discussion to follow outlines the research methodology, presents a framework for managing ES change in SMEs and links the components of this framework to characteristics of a LO based upon the results of our interviews with SME ES leaders.

Methodology

Qualitative methodology was employed. Semi-structured and unstructured interview questions were employed in order to understand the complex behaviour of members in the SMEs without limiting the field of inquiry (Fontana and Frey, 1994). Regarding the latter, care was taken to avoid leading questions; probe beyond the expected answers; explore inconsistencies; and record participants' own words. In line with Spradley's (1979) approach 'grand tour' questions were asked in the early stages of the interviews, which offered interviewees the opportunity to answer in ways that are comfortable and with content relevant to the interviewee, not the researcher. These were: (1) In your view, what were some critical pre-implementation elements important to the effective implementation of business sustainability change in your firm? (2) How did you go about making environmental sustainability an integral part of your firm? (3) What elements were most important in implementing specific environmental sustainability initiatives in your firm? (4) What were the environmental, social outcomes (both internal and external to your firm) and economic outcomes achieved by pursuing environmental sustainability and which enabled you to become a sustainability leader?

Two members of the research team conducted all interviews ensuring commonality across interviews while encouraging the respondents to expand on points they viewed as important. Interviews were voice recorded with consent of interviewees, transcribed by one of the interviewers and both interviewers asked questions and were involved in data analysis and discussions on data analysis. Apart from the interview data, secondary materials regarding sustainability issues in these firms have also been collected.

Purposive sampling (Higginbottom 2004) or critical-case sampling (Lindlof 1995) was employed in selecting the sample for the study since this type of sampling is appropriate when a specific instance is examined, in this case, ES change management.

Our study focused on SMEs recognised as environmental sustainability leaders in the SME sector in Queensland, Australia. Environmental sustainability leaders are described as 'firms that have taken the lead in reducing the environmental impact of their activities, usually at levels beyond regulatory compliance, and have achieved recognition as being "green" compared with their competitors' (Runhaar, Tigchelaar and Vermeulen 2008). We focused on SMEs and as such we could not use the criteria of formal sustainability principles as in the case of large firms (i.e. see Nattrass and Altomare 1995; 2002). A list of SMEs that have won awards or have been publically recognised was compiled through web research and conversations with sustainability professionals. In line with the suggestions by Strauss and Corbin (1990) cases have been selected from different industries, which ensured a diverse sample that can provide many possibilities for comparison, as this enables richer theory development. We identified twelve organisations fitting our research criteria and contacted the CEOs of these firms inviting them to participate in our study. We followed Miles and Huberman (1994) and Patton's (2001) argument that it is acceptable for qualitative research to rely on small sample sizes when the aim is to study the topic of inquiry in depth and detail. Baum (2000) suggests criteria of 12-20 respondents to achieve maximum variation and understanding. Our sample fits this criterion. The 12 study participants come from a number of industries and constituted CEO's and other sustainability champions associated with the firms who hold significant leadership roles along with some formal responsibility for their firms' sustainability efforts. All the interviewees were directly responsible for developing, executing and monitoring their firm's environmental sustainability strategies.

In terms of analysis, content analysis of interview and secondary data has been conducted utilising NVivo qualitative analysis software. This involved the coding and categorisation of data and the subsequent identification of main categories/themes, first level sub-themes and second level sub-themes (Babbie, 2004; Patton, 2001). To facilitate the identification of first level and second level sub-themes within each of the main four categories identified, a matrix was developed (e.g. Lambrecht et al., 2004; Stitt-Gohdes, Lambrecht, Redmann, 2000). Firstly, columns in the matrix indicated interview participants (12) and rows represent the main categories, and subsequent sub-categories. Data strips identified as sub-themes from the interview transcripts were entered as direct quotes into the columns of the matrix representing the categories. The data were then reviewed to identify recurring themes (Patton, 2001). Owing to the

voluminous set of interview examples, this paper only reflects a snapshot of relevant examples that reflect the characteristics of a learning organisation as identified in table 1.

Sample demographics

Employing the ANZSIC industry classification, five manufacturing (Winery, Wood Processing Plant, Wastewater Systems Supplier, manufacturer and distributor of environmentally friendly coloured renders, paints, coating systems and a Ginger Manufacturer), two retail trade (Wholesale Nursery, Retail Electrical Goods Store), one financial and insurance services (Chartered Accounting Firm), one accommodation and food services (Backpacker Hostel) and one 'other' (Printing Services), as well as two aquaculture businesses were included in this study. In defining a SME, small businesses in this study are constituted by 20 or fewer employees, (applying the Australian Bureau of Statistics definition of small business) and medium-sized businesses ranging from 21-200 employees. Half of the participating firms were small businesses, employing less than 20 employees. All firms have won awards for their sustainability initiatives or have been publically recognised for their efforts.

Findings: A framework for managing environmental sustainability in SMEs and the relevance of characteristics of a learning organisation

The main themes and first level sub-themes that emerged in relation to managing sustainability change in the participant organisations, and matching organisational learning characteristics that fit with each main theme are identified in Figure 1. In interpreting the framework in Figure 1, **it is important to note** that the arrows linking various stages in the framework indicate that the stages are not necessarily distinct and unique in nature and that there is not necessarily a linier progression from each stage to the next. For example, implementation aspects such as measurement needs to be done in the pre-implementation phase (in phase 1) as well in phase 3. Furthermore there will be an overlap of activities across various stages.

Owing to the space limitations of this paper, a detailed presentation and discussion of themes and interview examples that emerged on managing ES in participant organisations is not possible.

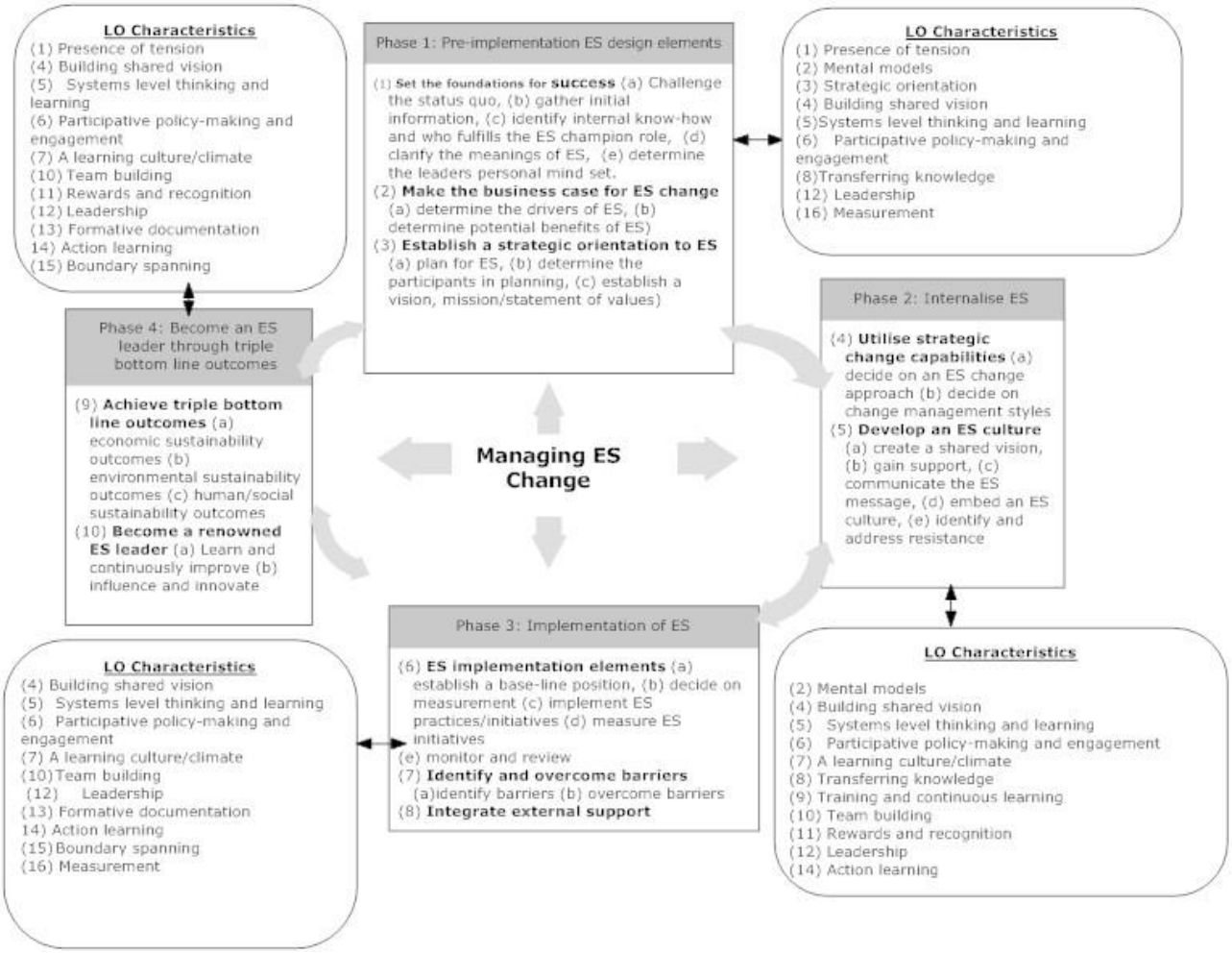

Figure 1: A framework for managing ES change in SMEs and the relevance of organisation learning characteristics to the various phases

As evident from Figure 1 the four main themes of managing environmental sustainability (ES) change examined have been: (1) pre-implementation elements relating to the design for ES; (2) internalising ES in the culture of the organisation; (3) practical implementation of ES initiatives; and (4) becoming a leader in ES.

Three first level sub-themes have been identified regarding the **first main theme, '**pre-implementation elements relating to the design for ES'. These include: elements that set the foundations of ES success, making the business case for ES and establishing a strategic orientation to ES. Several sub-themes were identified as part of the first level sub-theme, 'setting the foundations of ES success in participating firms', including: challenging the status quo; gathering of initial information; identification of internal know-how and deciding who fulfils the ES champion role; clarifying the meaning for ES for the firm; and the role of the leaders personal mindset regarding ES.

Secondly, it was evident from the interview data that apart from providing valuable data regarding what must change and why, the drivers of ES and benefits of ES provided a strong rationale and motivation for the rest of the organisation as to why ES is important to the organisation. Thirdly, the theme of strategic orientation was clearly evident from the interview data. This mainly manifested in a deliberate approach (planned, deliberate and rational set of actions) to planning although a few firms have also employed an emergent approach (a pattern in a stream of decisions and actions, where the strategic relevance of the pattern is identified in retrospect) to planning. It also manifested through the involvement of staff in planning for ES and through the use of a vision/mission/statement of values regarding ES in all firms.

Regarding the **second main theme,** two first level themes emerged regarding how ES champions have gone about making environmental sustainability an integral part of their firms, including: utilising strategic change capabilities and developing an ES Culture through creating conditions that motivate desired ES behaviour. Regarding utilising strategic capabilities, firstly, managers had to make a decision about what change approach to us. Participants firms have mainly used an incremental approach, with only three firms utilsing a radical approach. Secondly, ES champions had to decide what change management styles they were going to use. The majority of participating firms utilised a combination of top-down and participative management styles in the implementation of ES change.

The following first level sub-themes emerged regarding how ES champions developed an ES culture in their firms: a shared vision has been created and enacted; secondly, various initiatives have been undertaken to gain support of staff for making this vision a reality; the ES message has been communicated through a mix of informal and formal communication strategies, up and down through-out the firms.; specific actions have been taken by firms to embed the ES culture in the firm through artefacts, espoused values and a strengthening of basic assumptions; and finally various actions were taken to identify and address staff resistance to ES change.

The third main theme was the practical implementation of ES initiatives. In doing so the following first level sub-themes emerged: the establishment of an initial base-line position; deciding how to measure ES initiatives; the practical implementation of ES; measuring ES initiatives and monitoring and review of ES initiatives. Furthermore, participant firms have identified barriers to implementation and found ways in overcoming these barriers. They have also found numerous ways of how to integrate external support for their ES initiatives.

The **fourth** main theme focused on becoming an ES leader through triple bottom-line outcomes, including economic, environment and social/human outcomes. In becoming ES leaders, participants firms have not only been committed to continuous learning and improvement, but have also demonstrated their ES leadership by influencing others in their industry and becoming ES innovators in their industry.

Table 1 has been compiled to summarise the findings regarding how sixteen LO themes fit with the various phases of managing ES change. The first and second column mainly draws on the work of Jamalie (2006) who identified twelve LO characteristics. However, we have added an additional four characteristics identified in the literature that were relevant to the findings of this study. These include: mental models, a strategic orientation, building a shared vision and rewrads and recognition. The third column summarises how the LO characteristics fit with the themes identified in the interviews (also see Figure 1 for cross reference) and the last column provides some selected interview quotes that demonstrate examples of LO characteristics.

Table 1: Linking LO characteristics with managing ES change in SMEs

Characteristics of a learning organisation	Description of LO characteristics	How the LO characteristics manifested in the ES journeys of SME ES champions	Selected Examples demonstrating LO characteristics in participating firms
(1) Presence of tension to make ES change happen and readiness for change	'Creative tension is a reflection of the gap between the evolving vision and practical reality. Creative tension is often evidenced by questioning, inquiry, and challenging the status-quo' (Jamalie 2006) A state of attunement to the environment and willingness to question ways of doing business (Jamalie 2006)	This characteristic is especially relevant to phase 1 and 4. The interview data indicates that in phase 1 all SME ES leaders realised the need for change and they challenged the status quo in various ways before embarking on ES initiatives. This tension has again been spurred in phase 4, the 'becoming a leader' stage when SME leaders have become publicly recognised for their efforts in ES. All have achieved positive economic, social/human and environmental outcomes as a result of ES change. This has in-turn created an expectation by stakeholders for continuous change in these SMES.	"We identified that there was a market for that product and we also believed that we could do it better. We believe this is the future of aquaculture in Australia—simple, effective, intelligent technology combined with nature and what it has to offer" (Aquaculture Business no1).
(2) Mental models	SME managers' mental models influence their thinking processes in understanding, interpreting and predicting the environment and it impacts upon the change implementation strategies they employ. This is base on their core beliefs and values and it is also relevant to their previous experiences (Wiesner and Poole 2009; Wiesner, Chadee Best 2010).	This characteristic is especially relevant to phase 1 and phase 2. The mental models of SME champions espouse (meanings they attach to ES) in the pre-implementation stage played a significant role, both strategically by including it in their firm's strategy, and also in terms of providing an ES change focus of motivating staff. The main themes regarding meanings of ES evident from the interviews were: sustainability, more with less, organic supply chain, better business practices, a value, triple bottom line, good corporate citizen, little impact, if you need it use, if you don't turn it off, improve recovery, and environmentally friendly, eco friendly and environmental aware. In phase 2 their participative mental models have especially been instrumental in creating a culture for ES through participative change management and engagement of staff.	"ES is a passion for life, for things that beautiful and fun and profitable. It's like an investment and you have to change the way you look at the world to be a winner. You have to focus on the opportunities"(Manufacturer of environmentally friendly coloured renders, paints, coating systems)
(3) Strategic orientation (Campbell and Cairns 1994).	The manifestation of strategic thinking that facilitates the design and management of firms that respond effectively to competition and changing customer expectations (Campbell and Cairns 1994).	This characteristic is especially relevant to phase 1. The SMEs pursued a strategic orientation to the creative development through deliberate and emergent strategic options regarding ES for the long-term direction of the participating SMEs.	"I tend to write a huge business plan and we go back to it. We then take a small plan and update it quarterly and review results, including monthly and weekly meetings. I say 'Planning is everything, the plan is nothing'. Scenario planning is more relevant now. Then you need to bring it back down to a practical perspective with

			accountability" (Printery)
(4) Building shared vision (Senge, 1990; Evans and Lindsay, 1999).	Creating a strategic vision and clear quality values that serve as a basis for business decisions at all levels of the organisation. Building a shared vision concept and sustaining an environment for sustained excellence (Senge, 1990; Evans and Lindsay, 1999).	Participant firms have created a shared vision and communicated this vision. They have done this in phase 1, the pre-implementations stage in assigning leadership roles and the internalisation stage. Several main themes emerged regarding building a shared vision in phase 1 and phase 2: people wanted to be involved; obtaining staff contribution to overall target and breaking down in areas of responsibility; communication; making the vision clear; allowing people to see it in action and stating why they need to do things, proving reasons and rationale;; productivity measures; training; sustainability coach engaging staff; making it fun; team work. removing fear; and valuing staff. In phase 4, this characteristic is important in overcoming barriers and integrating external support. In phase 4, participants became recognised leaders in their communities/industry and facilitate external learning and vision sharing.	"We created a set of values of which one was environmental responsibility & people have joined the company with that in mind & are passionate about that. Communication is important and having a picture of where we want to go, what the direction is and allowing people to see it in action and stating why we need to do things, reasons and rationa"' (Wastewater systems supplier).
(5) Systems level thinking and learning (Jamalie 2006)	'Organizations as collectivities that nurture both individual and organizational learning. Emphasis on improving individual effectiveness but also on systematically capturing and building on individual knowledge/ insight '(Jamalie 2006). A circle of influence of change in one will affect the others. This allows patterns to be identified (Senge 1990).	Participant firms demonstrated systems-level thinking and learning in all phases. In the first phase, by being strategic about environmental sustainability and building it into their business models. In the second by making ES part of the culture and belief system of the firm (involving all parts of the firm); in the third phase by understanding that a change in one initiative will impact on another; and in the fourth phase by making it about triple bottom line outcomes (not only one outcome).	"Once has to have a holistic approach to implementation because positively changing one thing can have a negative impact on another" (Manufacturer of environmentally friendly coloured renders, paints, coating systems)
(6) Participative policy-making and engagement (Jamali 2006)	Contribution and involvement of all relevant stakeholders (internal and external) in policy-making. An effective dialogue and consensus building process that capitalizes on the input, feedback and active involvement of concerned stakeholders.	This LO characteristic was evident in all phases. In the first phase ES leaders involved staff in the panning for ES, in the second phase they utilised a combination of top-down and participative management styles in the implementation of ES change, and in the third phase they involved as many staff as possible in the implementation of ES by making ES 'part of the business' . In the fourth phase, contribution and involvement of external stakeholders are sought in further developing sustainability initiatives in the firm.	"We include people in decision-making (23 out of 65 staff included), we do strategic workshops with all people in management roles or next in line. It has to business wide to get buy-in. We have a picture of where we want to go, what the direction is & allowing people to see it in action & stating why we need to do things, reasons & rational" (Waste water systems supplier)
(7) A learning culture and climate (Jamalie 2006; 2008)	Cultural values of openness, experimentation and improvisation are	All participating firms had a spirit of a learning culture and acknowledged there is more	"We have participated in benchmarking through DEEDI & we did well against

	embraced. Time for reflection, communication and evaluation and tolerance for mistakes. Knowledge is embedded in the organization and stored in its culture. (Jamalie 2006). Opennes to learn from own experiences and of others' (Lakomski 2001; Sohal). Employees make time to discuss, exchange, and learn from what happens(Jamali 2008)	than one source or method of truth and that learning from experiences and best practice of others is a natural thing to do. This characteristic fits with phase 2, 3 and 4. In phase 2 and 3 it's about an openness to learn from others and change and in 4 it's about an iterative process of learning from others and helping others to learn from your experiences.	printers but not manufacturers. So we realised to use the opportunities for manufacturers & that is where the lean manufacturing training came from. Other printers think of you as competitors, whereas learning from other manufacturers is useful and can be potential customers and vice versa" (Printery).
(8) Transferring knowledge throughout the organisation, information sharing, collaboration and communication (Jamali e 2006, Campbell and Cairns 1994).	Clear and open channels for the development and dissemination of knowledge within and outside the organisation	This characteristic fits especially well with phase 1 and 2. This is done by engaging staff in planning and all firms used a mix of informal and formal communication strategies in developing a culture of ES. This ranged from informal communication includes face-to-face communication by simply talking to directly to staff to more formal types of communication strategies such as meetings, new letters, training, action plans, notice boards and signs. Committees and electronic communication proved to be a less popular strategy. One firm makes a specific attempt to target specific generations by using various types of communication and a couple of interviewees commented on implementing specific strategies to communicate with their clients/customers.	"Our eco-champion and my managers (so there are probably about 7 or 8 of us). We have weekly management meetings & then they speak to their own staff. Our meetings are pretty informal, more like a round table discussion & bounce ideas around" (Retail Electrical Goods Store).
(9) Training and continuous learning (Watkins and Marsick 1998; Porth et al. 1999)	Resources and facilities for self-development made available to all members of the organization Employees encouraged to take responsibility for their own learning and development (Jamalie 2006).	This characteristic is particularly relevant for phase 2. As part of developing a culture of ES and embedding a culture of ES participating ES leaders have developed their staff as a means of empowering staff at lower levels in the organisation.	"The key thing is that we have put a lot of our staff through training. All of our staff have trade level which is a certificate 3 (Apprenticeship). Seven of our staff have gone on to do a Certificate 4 in Lean Manufacturing which came out of Japan, which is about taking the waste out of the manufacturing process. Three of the staff are going onto do a Diploma this year. We believe that training our staff so they can progress and develop within our operation is perhaps the best investment we can make into the future sustainability of the business" (Printery)
(10) Team building and shared purpose(Watkins and Marsick 1998: (Sohal and	A team spirit based on trust, respect and cooperation. A sense of purpose and interconnectedness within the organization. An	Thos characteristics fits with phase 2, 3 and 4. Participating firms employed various type of teams to provide a manageable forum for embedding sustainability values and cultural change	"The team of four managers take the targets to their teams & then it goes down the line from there. We also have a small number of cross

Morrison 1995; Jamali 2006)	organisational climate which emphasis teamwork Sohal and Morrison (1995)	in these three phases.	functional teams as well (ie quality assurance, product development)" (Waste Water Systems Supplier).
(11) Rewards and recognition (Campbell and Cairns 1994; Griego et al. 2000)	Represents a culmination of the process and a motivation to restart the learning (Campbell and Cairns 1994). Employees are rewarded for acquired skills and contributions and emplyees taking calculated risks are rewarded. Rewards are given to employees for acquired skills and contributions Employees who take initiative and calculated risks are supported and rewarded (Jamali 2008)	This characteristic fits with phase 2 and 4. In phase 2 celebrations of successes have been emphasised continuously by participating firms. In phase 4 participating firms receives a lot of external recognition but staff also feel motivated by being externally recognised for their ES achievements.	"I think you have to be careful about that individual achievement. You must celebrate your wins but we do it as a team. There are individual achievements at times that you need to recognise " (Manufacturer of environmentally friendly coloured renders, paints, coating systems).
(12) Leadership (Jamali 2006; Watkins and Marsick 1998)	Leadership to catalyse pockets of learning which are then shared with the rest of the organization. Roles revolving around visioning, empowerment and leading-learning (Jamali e2006).	Leadership for ES in the participating firms have facilitated the design and of the efforts and leading the ES change in the firm, 'fighting for the good cause', publicising the organisation's commitment to ES, encouraging staff to participate, having sufficient authority to be effective, and having the ''visibility'' and personal qualities necessary to elicit support from staff. In phase 1 it is a about planning and personal vision, in stage 2 it is about empowerment and leading change. In phase 3 it is about the ability to overcome barriers and integrating external support and in stage 4 it is about influencing others, not only inside but also outside the firm.	"ES leadership is all about leading by example every step of the way' (Waste water plant) 'We are now being used as a role model for other retail businesses locally and nationally" (Retail Electrical Goods Store)
(13) Formative documentation/accounting and control (Jamalie 2006; Pedler et al. (1997)	Utilising documentation for accounting and reporting purposes to assist learning and innovation (Jamalie2006).	The majority of participating firms have through accurate measurement, been able document their sustainability achievements. However even though the majority of participating firms employ some kind of formative accounting and reporting on their ES initiatives, the focus has been more on informal reporting, providing information on community and environment contributions on their corporate website or producing sustainability sections in their annual reports. The formative documentation that does exist has enabled participant to formally being recognised for their ES initiatives and be successful in winning ES grants from various sources. This characteristic is especially relevant to phase 3 and 4. In phase 3 it is about providing important internal information about ES performance to others in the firms. In stage 4 it is about providing feedback to external stakeholders. However, it should be noted that	"We use simple ones like data with every energy bill, rates notices gives you water usage. We keep data on our waste & one reason is because we are selling a lot of that. We do monthly audits to tell us a few other things. There is a workflow to the arrangement of the factory in relation to no wasted movement, use of space efficiently, etc." (Printery)

		reporting in these SME differ from reporting in their larger counterparts.	
(14) Action learning (Jamalie 2006)	Action orientation punctuated by critical reflective assessment and course adjustment (Jamalie (2006)	This characteristic is especially relevant to phase 2, 3 and 4. In phase 2 the firms demonstrated and openness to share information , change the culture and learn. In phase 3 measurement lead the participating firms to reflect on their progress, learn from it and improve. In stage 4 it is about an already embedded culture of learning and continuous improvement. The participating firms took action, reflected upon and adjusted their course as required to enable them to generate new learning and perspectives.	"The greatest opportunities are provided by the ability to learn to work collaboratively rather than competitively with others and with nature" (Manufacturer of environmentally friendly coloured renders, paints, coating systems).
(15) Boundary spanning and inter-company learning (Jamalie 2006)	The ability to disseminate knowledge across organizational boundaries is one of the core strategic building blocks of a learning (Hoe 2006) organization. Close and continuous interaction with external stakeholders. Learning from customers, suppliers, and competitors (Jamalie 2006).	This characteristic is relevant to phase 3 and 4. In phase 3 the integration of external support has been sought by most participants, for example from government, local councils, professional and industry associations, business networks. Another theme which emerged was how some firms have reconsidered their links with suppliers to incorporate ES benefits and specifically choosing suppliers on the basis of their ES qualities. Through these interactions participants and stakeholders could identify common problems and explore higher-order solutions.	"We are associated with YHA and we have regular meetings and an annual conference that covers conservation & reduction in the impact that we make. I also sit on the board of backpackers QLD. We also try to promote the environmental message through the backpacking industry generally. We definitely learn from each other, particularly with other people in our industry who are doing tremendous work" (Backpacker Hostel).
(16) Measurement for performance progress and distributing business responsibility widely but still retain co-ordination and control (Senge 1990; Campbell and Cairns 1994)	The measurement process can be compared with the concept of the "learning wheel", which provides a continuous cycle of learning and represents an iterative process. It highlights performance and provide a basis for benchmarking (Campbell and Cairns 1994).	Measurement is especially relevant to phases 1 and 3. In phase 1 it is about measuring the initial base-line position of firms both of their ES position but also attitudes of their staff. In phase 3 participants indicated the importance of measurement in progressing thei initiatives. The types of measurements in participating firms range from sophisticated measurements of financial measurement, such as annual savings, payback to company, and projected measurements such as environmental dividends, in the form of energy savings, greenhouse gas emissions reductions and waste reduction, to quite basic measurements such as savings on power bills and an absence of comprehensive record-keeping. All firms agreed that measurement is important in tracking ES progress.	"We had to find out what our key indicator was & we ended up with something that covered all of the aspects of the business. That was a set of numbers that was described as cubic metres of log giving us millions of sticks out & then we could start measuring that. What we found out in relation to this sustainability aspect is that 'You can't do anything unless you have it measured'. There has to be a very reliable system of measurement within the process to compare yourself with" (Wood processing Plant).

Sources: Table adapted from Jamalie (2006) who identified 12 LO characteristics. Four additional characterising were added within the context of this study. Additional sources utilised for further development: Evans and Lindsay (1999); Senge (1990: 210-18; Terziovski et al (2000); Campbell and Cairns (1994); Sohal and Morrison (1995); Wiesner and Poole (2009); Wiesner, Chadee Best 2010) plus main themes derived from the interview data and direct interview quotes.

Discussion and Conclusions

It is evident that all the characteristics of a LO identified, could be linked to the management of ES change in SMEs. Since this study is based upon the experiences of SME ES champions that have won awards for their ES initiatives, it could be argued that the relevant LO characteristics have assisted them in achieving their sustainability outcomes and becoming recognised ES leaders.

The LO characteristic *'presence of tension'* which indicates a gap between the current reality of the firm and the preferred future vision, the evolving vision and practical reality (Jamalie 2006), fits particularly well with phase 1 and 4 of the ES change framework presented in this paper (see Figure 1). In the pre-implementation phase, the actual moment of ES change begins the moment a person or a group hears the wake-up call and recognises that there is a reason for change. At this very early stage of change, it is important to identify and understand what wake-up calls exist, what they mean and what is being done with them by those in positions to initiate change (Wiesner, Chadee and Best (2010). This tension also comes into play in phase 4 when ES champions feel the pressure of internal and external stakeholder expectations to further progress and build upon their already successful implementation of ES initiatives.

The characteristic '*mental models'* has shown to be particular relevant in phase 1 and 2. A belief that ES change will have positive benefits either in terms of environmental, economic and/or social sustainability seemed to have brought a personal commitment to initiating and implementing specific ES changes in their firms. Owing to the discretion that managers enjoy in their decision- making, their attitudes become decisive in progressing organisational change (Adner & Helfat 2003). Furthermore, mental models that favour strategic thinking at multiple organisational levels, the involvement of employees in the planning process and engagement of employees in all levels of the change process, are essential in creating and sustaining competitive advantage through sustainability outcomes (DiVanna & Austin 2005; O'Shannassy, 2003).

Concerning the characteristic '*strategic orientation*', Hannon & Atherton (1998) argues that SMEs which utilise some form of strategic approach, however informal, do perform better and are more likely to endure. Therefore, in the first phase, involvement in a strategic development process may separate successful SMEs from those who experience problems in survival (Marlow 2000; Verreyne 2006). Our findings indicate that participating SMEs all had a strong strategic orientation to the pursuit of ES in their firms. They have achieved the creative development of learning through deliberate and emergent strategic options regarding ES for the long-term direction their firms.

The LO characteristic building a '*shared vision*', fits with all the phases of ES change management. A shared vision not only sets the direction for the SME to move beyond the rhetoric of environmental sustainability and integration of economic and social/human resource sustainability outcomes, but also empowers staff to be part of the visioning process. All study participants employed clear conceptualisations of their preferred directions and sustainability outcomes and these visioning pathways were incorporated in each step of the ES framework.

The LO characteristics, '*Systems level thinking and learning'* also links with each phase in the framework. It was clear from the interview data that a clear awareness of systems-level thinking was prevalent in all participant organisations. Participating firms have taken into account that a change in one part of the system would impact on that of another. Senge (1990) calls this a circle of influence of change. However systems level learning was also evident in participating firms. A joint emphasis on the improvement of individual effectiveness and team effectiveness was evident. As part of this emphasis on effectiveness, individual insights were built upon where possible.

The LO characteristic, '*participative policy-making and engagement*' fits with all phases. This entails the engagement of internal stakeholders in the planning and visioning process, engagement of staff in engendering a culture of participating and learning, widespread engagement of staff in the practical implementation of ES initiatives and eliciting the contribution and involvement of external stakeholders in the fourth phase through achieving social and community sustainability outcomes (Jamalie 2006).

A '*learning culture'* fits with phase 2, 3 and 4 in that participating firms seem to have built a culture that becomes a repository for lessons learned. Within the context of this study, it meant participants foster a culture of creative willingness to learn, individual training, opportunities of self-development and learning. Jamalie (2006) stresses the importance of availability of resources and facilities for development and continuous learning in order to staff to take responsibility for their own learning.

'*Team building and a shared purpose*' have been employed in participating firms to provide forums for

embedding sustainability values and cultural change (Sohal and Morrison 1995) and fits particularly well with phase 2, 3 and 4. Team building in participating firms seems to have provided a manageable forum for embedding sustainability values and cultural change in their firms. The LO characteristics 'r*ewards and recognition'* have been employed as an extension of team building and the collective achievement of ES outcomes. Campbell and Cairns (1994) argue this LO characteristic signifies a culmination of the process and a drive to recommence learning.

'*Leadership*' plays an essential role in not only outlining a realistic desired pathway to sustainability but also engendering a climate of sustainability. This characteristic fits with all phases of the ES change framework. Leadership plays a key role in anchoring and promoting values of learning in the firm (Amitay et al. 2005). In addition, in participating firms, ES champions model, champion and support ES learning and use it strategically to achieve business outcomes (Jamalie 2009).

The LO characteristic '*action learning*' fits especially well with phase 2, 3 and 4 and entails three aspects including, taking action, reflection and correct or change the course of action as required and when needed in the generation of new knowledge perspectives and learning (Jamalie 2006). Action learning as a medium to foster an effective learning environment has played a role in enabling participating firms to become learners and teachers in the process of achieving sustainability.

The characteristic *'boundary spanning and inter-company learning'* fits with phase 3 and 4 of the framework. What presents a challenge to SMEs specifically is the context of limited information within which they operate. Isolation from global centres of excellence, or the absence of local firms with similar technologies or problems, can exacerbate information scarcity and ultimately innovation success. Often, the relatively small size of the domestic market means many industries do not have enough firms to create the networks and linkages which can be observed overseas. It could be argued that in most sectors the Australian business environment provides less opportunity to SMEs for engagement with the ideas, people and commercial imperatives that drive innovation (Wiesner, Chadee and Best 2010). However, the participant firms have managed to identify external stakeholders to recognize common challenges, learn from each other and in the process assist each other in furthering ES learning across boundaries.

'*Measurement*' is especially relevant to phase 1 and 3 in that it provides study participants with a continuous cycle of learning and represents an iterative process. Measurement also highlights performance and provides a basis for benchmarking (Campbell and Cairns 1994).

'Formative accounting and reporting' in phase 3 and 4 has been the one LO characteristic that some of the participating firms had trouble with. The majority of participating firms employ some kind of formative accounting and reporting on their ES initiatives. However, their reporting has not been focused on complying with the GRI (global reporting initiative) requirements in disclosure, their reporting is more informal in nature and there is a minor focus on having full formal sustainability audit reports. The focus has been more on providing information on community and environment contributions on their corporate website or producing sustainability sections in their annual reports. They have done this not only to provide feedback to external stakeholders, but also make available essential internal information regarding ES performance to managers and staff. They have also used this information in applying for ES grants and awards. However, three firms expressed their concern about keeping up with measurement and reporting of ES initiatives owing to a lack of time and expertise. This finding is supported by literature that argues that SMEs face significant barrier regarding ES reporting and that industry and the Government need to take action to assist SMEs with education or subsidy in ES reporting.

In **conclusion**, it is clear from the discussion above that the learning characteristics outlined in this paper all fit with the ES change management framework proposed in this paper with the exception of 'formative documentation/accounting and control' which showed a weak fit. Together these organisational learning characteristics combine in cultivating a learning environment in which ES change initiatives can optimally be planned for, internalised into the firm, implemented and ES leadership behaviours flourish. Based on the qualitative analysis in this paper we conclude that the twelve participating firms are supported by a commitment to learning. It would not have been possible for the participating firms to have achieved the level of ES attainment without this overarching principle. It therefore seems that the elements identified in the ES change management framework are strongly underpinned by the LO characteristics in various ways, and SME managers need to actively draw on these characteristics in managing their ES change journeys. The notion that ES change management and the learning organisation is mutually dependent is therefore supported. However this theory should be further analysed by also examining the perspectives of staff and external stakeholders regarding the linkages proposed in this paper.

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