Environmental leadership and consciousness development: A case study among Canadian SMEs

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Abstract

The objective of this paper is to explore how the various stages of consciousness development of top managers can influence, in practical terms, their abilities in and commitment to environmental leadership in different types of SMEs. A case study based on 63 interviews carried out in 15 industrial SMEs showed that the organizations that displayed the most environmental management practices were mostly run by managers at a post-conventional stage of consciousness development. Conversely, the SMEs that displayed less sustainable environmental management practices were all run by managers at conventional stages of development. Drawing upon diverse examples of environmental leadership, this paper analyzes the reasons why the stages of post-conventional consciousness development of top managers seem to foster corporate greening in SMEs. The study also sheds light on the key values and abilities associated with both environmental leadership and the upper-stages of consciousness development, which include a broader and systemic perspective, long-range focus, integration of conflicting goals, collaboration with stakeholders, complexity management, collaborative learning, among others.

Keywords: Environmental leadership · Sustainability · Consciousness development · Values · SMEs · Corporate greening

Introduction

Corporate greening depends to a large extent on the commitment and leadership of top managers who are in a position to implement policies and practices that can improve environmental performance. For SMEs, environmental leadership is becoming more essential given that the companies' size and limited resources often make it difficult to implement well-organized initiatives that effectively address sustainability issues. The SMEs' general lack of knowledge of environmental impact and its traditional culture of resistance to both self-regulation and government interventionism also undermine their responsiveness to external pressures (Revell and Blackburn 2007; Revell et al. 2010). From this perspective, the environmental commitment of SMEs is often quite limited and cannot adequately develop without the support of top managers. Although environmental leadership roles, motivations and values have been widely studied in the literature (Egri and Herman 2000; Dechant et al. 1994; Flannery and May 1994; Anderson and Bateman 2000; Bansal 2003), the respective meaning systems and abilities underlying this leadership remain underexplored. As a result, research in this area tends to be

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focused on what environmental leaders do, rather than address the underlying meaning system and abilities that inform their actions. Environmental leadership is thus generally associated with various managerial practices: implementation of an environmental management system, promotion of a proactive strategy, stakeholder management, reporting practices, etc. (Jose and Lee 2007; Maak and Pless 2006; Maak 2007; Kashmanian et al. 2010; Fowler and Hope 2007; Bansal 2003). Within the literature, the analysis of these practices tends to project a rather simplistic monolithic view of environmental leaders who instrumentally endorse a green vision of various managerial initiatives. Nevertheless, such an environmental commitment cannot be dissociated from the underlying worldviews, abilities and psychological predispositions of managers (Brown 2011; Boiral et al. 2009). These fundamental psychological aspects are related to the consciousness development of individuals, that is to say the meaning-system that determines the personal worldviews, deep motivations and abilities to take complexity into account (Harung et al. 2009; Cook-Greuter 2000, 2004; Pfaffenberger et al. 2011; Bartunek et al. 1983).

Various studies have shown that a manager's stage of consciousness development has a significant impact on his or her ability to handle complex issues, conduct change and successfully promote innovation (Rooke and Torbert 1998, 2005; Fisher and Torbert 1991; Harung et al. 2009). Generally speaking, post-conventional managers are able to take a broader and more flexible view of reality than their conventional counterparts. A few recent studies have also hypothesized that the emergence of post-conventional stages of consciousness development among managers can significantly foster their environmental leadership (Rogers 2012; Boiral et al. 2009; van Marrewijk 2003; van Marrewijk and Hardjono 2003). This hypothesis provides a promising explanation of the environmental commitment of SMEs whose green initiatives are largely discretionary and depend on the owner–manager's personal leadership, values, and abilities. Nevertheless, research in this area has remained largely speculative and based on theoretical assumptions that have yet to be empirically validated.

The main objective of this paper is to explore how the various stages of consciousness development of top managers can influence, in practical terms, their abilities and commitment to environmental leadership in different types of SMEs. More specifically, this study explores, through a case study of 15 SMEs, the particular ways that conventional and post-conventional stages of consciousness development influence how top managers perceive and manage environmental issues. The comparison between green and passive SMEs sheds new light on how top managers' meaning systems and their associated capacities influence their approach to environmental leadership. As such, this study explores certain psychological dimensions of environmental leadership that have been overlooked in the literature. It also re-examines various issues of environmental management from a new developmental perspective that highlights the role of managers' meaning systems and their abilities to successfully meet basic sustainability challenges: stakeholder management, reconciliation of economic and environmental goals, anticipation of external pressures, etc.

The remainder of the paper is structured as follows. First, the literature on environmental leadership is considered from the perspective of consciousness development theories. Second, the methodology of the empirical study is presented. Third, the main results of the case study are analyzed from two main perspectives: the stages of consciousness development underlying

environmental commitment, and the abilities that differentiate green leaders from their passive counterparts. Finally, the conclusion discusses the main implications of the study, its limitations and various avenues for future research.

The Developmental Perspective of Environmental Leadership

Although environmental leadership is generally considered as a prerequisite to corporate greening (Egri and Herman 2000; Flannery and May 1994; Boiral et al. 2009), few empirical studies have focused on the way managers' meaning systems and abilities can influence sustainability commitments, notably in the case of SMEs.

Environmental Leadership and Corporate Greening

Defined as ''the ability to influence individuals and mobilize organizations to realize a vision of long-term ecological sustainability'' (Egri and Herman 2000, p. 2), environmental leadership has driven the greening of many organizations. These include companies considered as international models of sustainability such as Patagonia, Body Shop, and Interface (Kearins and Collins 2012; Fowler and Hope 2007; Stubbs and Cocklin 2008). Whatever the organization's size and environmental commitment, the top managers' leadership clearly plays a key role in corporate greening (Kearins and Collins 2012; Egri and Herman 2000). Studies on this issue have essentially focused on four areas: environmental practices and responsibilities, motivations, economic impacts and values.

First, the role of environmental leadership has been associated with the implementation of various environmental practices and top managers' responsibilities in promoting change. The successful implementation of environmental practices (i.e., the implementation of a sustainability policy, pollution prevention actions, promotion of industrial ecology, training programs, etc.) presupposes an active commitment from top managers (Kearins and Collins 2012; Revell and Blackburn 2007; Revell et al. 2010). Second, studies on the motivations behind environmental leadership and corporate greening have shown the importance of the search for social legitimacy and response to stakeholder expectations. The environmental commitment of managers is therefore often driven by institutional pressures that prompt the implementation of structures and practices considered as legitimate by stakeholders (Hoffman 1999; Boiral 2007). The managerial perceptions of these pressures determine how proactive the strategies to reduce environmental impacts through sustainability and resource allocation will be (Buysse and Verbeke 2003; Sharma 2000). Third, environmental leadership has been associated with various organizational benefits: reduction of pollution control, improvement of the corporate image, better employee motivation, higher productivity, etc. (Ambec and Lanoie 2008; Roy et al. 2001). Fourth, certain studies have focused on the values underlying environmental leadership and strategies for sustainability (Egri and Herman 2000; van Marrewijk and Hardjono 2003; Crossman 2011; Bansal 2003). Environmental leaders are for that reason supposed to move from the dominant social paradigm (DSP), characterized by overconfidence in industrial advancement, economic growth, and technological progress, to a new environmental paradigm (NEP), characterized by an emphasis on environmental protection and recognition of the limitations of industrial growth due to natural resources depletion (Shafer 2006; Egri and Herman 2000; Boiral et al. 2009).

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Although the literature on environmental leadership has shed light on the importance, motivations and possible impacts of manager involvement in corporate greening, the nature and scope of this involvement remains underexplored. First, the literature analysis of environmental leadership is most often conducted from a theoretical perspective. For example, most studies on NEP and the so called ecocentric values that are supposed to drive corporate environmental commitment (Shafer 2006; Egri and Herman 2000; Crossman 2011) remain non-specific and seem quite disconnected from the concrete sustainability challenges faced by managers in their daily work activities. Moreover, environmental leadership and its practical manifestations inside organizations have rarely been studied and generally from a quite instrumental viewpoint: integration of stakeholder expectations, promotion of proactive measures, implementation of an environmental management system, etc. More research is therefore needed to understand the way top managers interpret and manage environmental issues in practical terms, especially inside SMEs.

Second, research on environmental leadership tends to project an idealized image of green leaders who are often made out to be the new heroes of sustainability. The focus on success stories in corporate greening has also contributed to exemplifying environmental leaders, considered as models to be emulated by other managers (Stubbs and Cocklin 2008; Kearins and Collins 2012; Fowler and Hope 2007). Nevertheless, most top managers can hardly be considered environmental leaders, especially in SMEs where sustainability issues are rarely seen as a priority (Revell and Blackburn 2007; Revell et al. 2010). Generally speaking, the way environmental issues are perceived and managed within firms that are considered to be passive or reluctant to promote green initiatives has remained underexplored. How do managers of these passive firms interpret environmental issues? What are the main differences between environmental leaders and their counterparts from passive organizations in terms of leadership abilities, meaning systems and worldviews? These important questions need to be more clearly addressed.

Third, specific abilities underlying environmental leadership have been overlooked in the literature (Sweet et al. 2003; van Kleef and Roome 2007; Fernández et al. 2006) or examined from a rather general perspective (Rogers 2012; Boiral et al. 2009). For example, according to Egri and Herman (2000), environmental leaders tend to be more ecocentric and to put more emphasis on interpersonal, technical, and conceptual skills. Nevertheless, these skills remain quite unspecific and seem disconnected from concrete environmental challenges. Because environmental issues are characterized by their complexity, interdisciplinary challenges and institutional pressures, it is reasonable to assume that they require the development of more specific and complex abilities (Fernández et al. 2006; Boiral et al. 2009; Metcalf and Benn 2013). For example, strategies for climate change must take into account regulatory pressures, social expectations, implementation of new technologies for reducing greenhouse-gas-emissions, economic impacts of measures in this area, etc. Whatever the managers' espoused values, these strategies also require that they be able to effectively manage complexity, uncertainty and change. The same remark applies to other environmental challenges such as the implementation of a successful environmental management system, integration of stakeholder expectations, anticipation of external pressures, promotion of industrial ecology, etc. According to Metcalf and Benn (2013, p. 369), the complexity of sustainability issues requires ''leaders of extraordinary

abilities'' to manage such complexity, something that can hardly be taken for granted inside organizations and certainly requires more investigation.

Although the literature has been almost silent on the meaning systems and specific abilities needed for environmental leadership, recent research based on developmental approaches could help to shed new light on this issue.

Consciousness Development and Environmental Leadership

The developmental perspective represents an emerging approach to exploring maturational differences in the way individuals make sense, experience and act upon reality through the lens of various stages of consciousness (Bartunek et al. 1983; Cook-Greuter 2004; Harung et al. 2009; Pfaffenberger et al. 2011; Rooke and Torbert 2005). Comparable to personal epistemologies or worldviews, these stages of consciousness—also called stages of Ego development—are generally defined as meaning-making systems that are simultaneously cognitive, affective, and operative (Cook-Greuter 1999; Wilber 2000). Primarily cognitive, a stage of consciousness incorporates into a coherent whole, different levels of meaning-making structures developed or assimilated throughout one's life in order to adapt to the challenges of one's environment or to fulfill certain potentials. Each stage also determines the ontological experience linked to the worldview with which one identifies, namely one's emotional stakes (ex: new fears) and ability to monitor emotional experiences as well as what one understands as the purpose of life; that is, the values and needs acted upon as well as the goals one is moving toward (Cook-Greuter 1999). So, as a new stage of consciousness is reached, one embraces a new set of needs and values and has to develop a new repertoire of strategies and abilities to act upon them effectively.

According to Cook-Greuter (2004, p. 4), developmental theories are based on various assumptions:

> *Growth occurs in a logical sequence of stages or expanding world views from birth to adulthood. The movement is often likened to an ever widening spiral. Overall, world views evolve from simple to complex, from static to dynamic, and from ego-centric to socio-centric to world-centric. Later stages are reached only by journeying through the earlier stages. Once a stage has been traversed, it remains a part of the individual's response repertoire, even when more complex, later stages are adopted. Each later stage includes and transcends the previous ones. (...) Each later stage in the sequence is more differentiated, integrated, flexible and capable of optimally functioning in a rapidly changing and complexifying world. People's stage of development influences what they notice or can become aware of, and therefore, what they can describe, articulate, influence, and change.*

Consciousness development stages gravitate around three main levels: pre-conventional, conventional, and post-conventional (Cook-Greuter 2000; Graham 1995; Harung et al. 2009). Pre-conventional stages comprise \5 % of the adult population and are characterized by opportunist, impulsive, and self-protective behaviors. Conventional stages comprise nearly 80 % of the adult population and are characterized by the adaptation to social rules, values, and conventions. Post-conventional stages comprise approximately 15 % of the adult population and are marked by the capacity of individuals to question and improve creatively existing rules, better manage complex issues, interact easily with various stakeholders and deal with problems

more proactively than their conventional counterparts (Pfaffenberger et al. 2011; Cook-Greuter 2004; Rooke and Torbert 2005).

Research into the managerial applications of developmental approaches has mostly focused on the way different stages can influence the leadership style, competency, and performance of managers (Rooke and Torbert 1998; Fisher and Torbert 1991; Joiner and Josephs 2007). Empirical studies on this issue are consistent with the main assumptions of developmental theories. In general, post-conventional managers appear to be more flexible, innovative and successful than their conventional counterparts (Baron and Cayer 2011; Rooke and Torbert 2005; Harung et al. 2009). Their ability to manage complexity, reappraise conventions and deal with different stakeholders makes it easier to implement change, promote new ideas and develop collaborations. Post-conventional stages have also been associated with a higher organizational as well as individual performance, and greater capacity to adapt one's style of leadership to different types of situations (Joiner and Josephs 2007; Rooke and Torbert 2005).

Little theoretical research has attempted to use developmental theories to analyze, from a new and more comprehensive perspective, the environmental issues faced by organizations. Marrewijk has proposed to re-examine definitions and debates over corporate social responsibility and corporate sustainability through the lens of developmental theories, notably the theory of Spiral Dynamics (van Marrewijk 2003; van Marrewijk and Hardjono 2003). Popularized by Beck and Cowan (1996), this developmental theory emphasizes the core values system associated with different stages of consciousness, which come with specific needs and abilities. According to van Marrewijk (2003), corporate social responsibility and corporate sustainability can be interpreted through five main value systems: compliance-driven, profit-driven, caring, synergistic, and holistic. As value systems grow towards holistic, concerns become based on a systemic, long-range and inclusive vision of corporate sustainability. Such an orientation is made possible when the individuals' life conditions and abilities satisfy their needs for survival, security, affiliation, mastery and, to some degree, self-actualization (van Marrewijk 2003). The Spiral Dynamics value system appears to offer a preliminary bridging of the gap between developmental theories and environmental issues, offering a partial response to the call for more spiritual, inspirational and universal values to promote both environmental and transformational leadership (Crossman 2011; Egri and Herman 2000; Chen and Chang 2012; Du et al. 2012). Nevertheless, the theory primarily focuses on the general evolution of human values rather than the concrete and particular environmental challenges faced by SMEs. The concept of ecological selves recently proposed by Rogers (2012) also links environmental leadership to consciousness development. According to Rogers, sustainability issues can be managed through eight main ecological selves, each based on a specific stage of consciousness development: eco-guardian, eco-warrior, eco-manager, eco-strategist, eco-radical, eco-holist, eco-integralist, and eco-sage. Still, the description of these ecological selves remains somewhat elliptic and to differing degrees disconnected from the literature on environmental management as well as on the managerial applications of developmental theories.

Boiral et al. (2009) examined this connection between the two extensive literatures of environmental management and the managers' stages of consciousness development (see Table 1). Investigated in and across in-depth empirical studies, the literature on managers' stages of consciousness development are based on established typologies developed by Torbert (Rooke

and Torbert 2005), Beck and Cowan (1996), and Kegan (1994; Kegan and Lahey 2009). As such, the particular characteristics of stages of consciousness development associated with managerial activities are grounded in considerable empirical data that cannot be reduced to a single study or model. Moreover, these characteristics are not only based on general values but also on abilities, strengths, and weakness (Rooke and Torbert 2005). These stages can be connected to the main challenges of environmental leadership (see Table 1).

Generally speaking, the developmental perspectives of corporate sustainability have helped bring legitimacy to the underexplored interior, psychological dimensions of environmental leadership. An understanding of managers' work in this area can hardly be reduced to the traditional extrinsic factors described in the literature: external pressures, economic benefits, search for legitimacy, etc. (Bansal and Roth 2000; Anderson and Bateman 2000; Dechant, et al. 1994; Flannery and May 1994). Whatever their importance, the way these factors are interpreted and managed largely depends on managers' worldviews, values and meaning-making frameworks, which in turn are shaped by the particular stage of their consciousness development. From this perspective, the emergent literature on the developmental approach of corporate greening advocates a critical examination of the idealized and monolithic view of environmental leadership, which cannot be reduced to a single set of values for corporate sustainability but must be properly understood in the context of diverse meaning systems (van Marrewijk 2003; van Marrewijk and Hardjono 2003). The few studies conducted on the relationships between environmental leadership and stages of consciousness development have nonetheless shed light on the abilities associated with these meaning systems and their possible impact on corporate greening (Rogers 2012; Boiral et al. 2009).

Nevertheless, this emerging literature remains largely theoretical, and the way the managers' stage of consciousness can translate into environmental leadership inside organizations must be empirically explored to be better understood. In his recent doctoral thesis, Brown (2011) analyzed how post-conventional managers from business, government, and civil society engage in environmental initiatives. Their management commitments appeared consistent with the basic assumptions about advanced post-conventional leaders (Joiner and Josephs 2007; Rooke and Torbert 2005; Pfaffenberger et al. 2011): global perspective, greater vision, support of individuals and systems to promote new ideas, etc. Nevertheless, the advanced stages of consciousness studied by Brown (Strategists, Alchemists, Ironists) represents \5 % of the entire population of managers and can thus hardly be representative of environmental leaders as a whole. Moreover, this study focused on excavating the broader meaning system of advanced post-conventional leaders rather than addressing the practical implications of advanced consciousness development for environmental management.

Although the developmental perspective appears to represent a promising avenue for research on environmental leadership, in the quasi-absence of empirical study, its relevance remains questionable. Two main sets of questions need to be answered to demonstrate the relevance of this developmental perspective. First, the relationships between managers' environmental commitment and particular stage of consciousness development should be studied from various organizational as well as developmental situations. What are the specific concrete implications of each respective stage of consciousness development for environmental leaders? Do green SMEs tend to be predominantly operated by post-conventional managers? Conversely, to what extent

are passive or resistant SMEs run by conventional or pre-conventional managers? Second, there is a need to analyze the particular environmental values and abilities associated with each stage of consciousness development (see Table 1). Although there may be difficulty in empirically demonstrating certain implications for each stage of environmental leadership, key differences between conventional and post-conventional leaders could be addressed through such questions as: to what extent can the abilities required for promoting environmental leadership be empirically related to the particular characteristics of post-conventional stages? Conversely, in what ways do leaders from passive SMEs lack these capacities?

This study attempts to empirically explore two complementary sets of issues:

- The stages of consciousness development underlying SMEs' environmental commitment;
- The environmental values and abilities that depend on the top managers' stages of consciousness development.

Table 1 Stages of consciousness development and environmental leadership (adapted from Boiral et al. 2009, pp. 488–489)

	Stage and frequency (Rooke and Torbert 2005)	Possible implications for environmental leadership
Pre-conventional	Opportunist (5 % of managers): self-interested conduct, egocentricity, mistrust, opportunism	Little sensitivity to environmental issues except when they represent a threat or foreseeable gain for the manager; resistance to pressure from stakeholders, who are viewed as detrimental to one's interests; view of the environment as a collection of resources to exploit; sporadic and short-term measures
Conventional	Diplomat (12 % of managers): focus on group norms, search for social approval, conflict avoidance	Support for environmental questions in order to keep up appearances or to follow a trend in established social conventions; attempt to soothe tensions related to environmental issues within the organization and in relations with stakeholders
	Expert (38 % of managers): focus on rationality and personal expertise to improve efficiency	Consideration for environmental issues from a technical, specialized perspective; reinforcement of expertise of environmental services; search for scientific certitude before acting; preference for proven technical approaches
	Achiever (30 % of managers): goal oriented, focus on pragmatism and group performance	Integration of environmental issues into organizational objectives and procedures; development of environmental committees integrating different services; response to market concerns about ecological issues; concern for improving performance
Post-conventional	Individualist (10 % of managers): critical distance, creative thinking, acceptance of different viewpoints	Inclination to develop original and creative environmental solutions and to question preconceived notions; development of a participative approach requiring greater employee involvement; more systemic and broader vision of issues
	Strategist (4 % of managers): individual and organizational transformation, systemic worldview	Inclination to propose a pro-environmental vision and culture for the organization, more in-depth transformation of in-house habits and values; development of a more proactive approach conducive to anticipating long-term trends; marked interest for global environmental issues; integration of economic, social and environmental aspects
	Alchemist (1 % of managers): comprehensive transformation of organization and society; integration of material, spiritual and societal issues	Re-centering of the organization's mission and vocation toward a more social and environmental outlook; activist managerial commitment; involvement in various organizations and events promoting harmonious societal development; support for global humanitarian causes

Methods

As stated, this paper explores how environmental leadership and the ability to manage sustainability issues inside SMEs are shaped by the stages of conscious development of top managers. Because environmental leadership can hardly be measured precisely and consciousness development is embedded in complex meaning systems, this study is based on a qualitative and inductive approach. The intent here is not to measure correlations between variables, but rather to investigate how environmental issues are interpreted and managed inside SMEs. The focus on SMEs instead of on large organizations is justified by the key role of the owner–manager in the promotion of environmental issues (Revell and Blackburn 2007; Revell et al. 2010). The top manager's meaning-making system and consciousness development is therefore expected to directly influence the environmental commitment of the whole organization.

Case Selection

The case study method was chosen in order to delve deeper into environmental leadership and practices in this area. Case studies are particularly well suited to studying complex phenomena from different angles and comparing various organizational situations (Yin 1981, 2003; Eisenhardt 1989). This method also made it possible to collect a large variety of data, which was necessary to analyze the complex relationships between environmental leadership and consciousness development: data on environmental initiatives, interviews with middle-managers and employees, top manager perceptions of sustainability issues, internal documents, stages of consciousness development analysis, etc. Although the external validity of case studies is limited, the objective of this method is not to generalize specific results but rather to explore new ideas and develop new theories from an inductive approach (Yin 2003; Bansal and Roth 2000; Boiral 2007). In order to compare differences between the level of environmental commitment of top managers and their stage of consciousness development, the study was based on two groups of SMEs whose selection criteria are exposed below:

- Green SMEs in which the top manager was actively committed to promoting environmental initiatives inside his organization;
- Passive SMEs in which the top manager was not actively committed to or particularly concerned by environmental issues.

All in all, six green SMEs and nine passive SMEs were studied. With regard to the selection criteria, the SMEs studied belonged to the Canadian manufacturing sector. The case studies in the manufacturing sector made it possible to observe how substantial environmental issues were handled by green versus passive top managers. Moreover, all SMEs were exposed to similar regulatory pressures and faced various environmental impacts. All the cases studied had less than 300 employees, which corresponds to the limit often used to define SMEs (Loecher 2000). The case study method does not require a random or representative sample of the population (Bansal and Roth 2000). Green SMEs were selected by cross-checking different kinds of information from various sources: winners of environmental contests, references from environmental agencies, articles in newspapers, investigations carried-out in previous studies, etc. Preliminary interviews with top managers made it possible to evaluate the strength of their commitment to environmental issues and willingness to participate in the study. This evaluation was based on

specific questions concerning the environmental objectives and programs implemented by their organization. The top managers were also questioned about the extent and nature of their personal commitment to sustainability. Responses obtained during these preliminary interviews were consistent with the information on green SMEs collected from the external sources available. Most respondents released very detailed and specific information on the greening of their organization, demonstrating their knowledge and personal commitment in this area. All the green SMEs selected to participate in the study were considered environmental leaders in their respective industries. Passive SMEs were first selected by cross-checking information against the same type of criteria: studies from environmental agencies (prosecutions, severe pollution problems, etc.), articles in newspapers concerning industrial pollution, investigations carried-out in previous studies, etc. Nevertheless, this selection process was very difficult because SMEs facing severe environmental problems were reluctant to participate in the study. However, the researchers' contacts with the local business community and industrial associations made it possible to select passive SMEs. These SMEs were not necessarily confronted with major pollution problems, nor were their top managers unconcerned about environmental issues. Instead, they appeared to be quite representative of the wait-and-see, passive attitude characterizing the environmental commitment of most SMEs (Revell and Blackburn 2007; Revell et al. 2010). Contrary to green SMEs, preliminary interviews with these top managers on environmental issues did not provide specific information on objectives and programs in this area. In fact, most managers openly admitted their lack of environmental knowledge and commitment and were unable to describe substantial actions in this area implemented by their organization.

Overall, useful environmental data was more difficult to collect inside passive SMEs. Contrary to most green SMEs, it was not possible to interview respondents other than the top manager and other managers (see Table 2). Furthermore, those interviews were shorter than inside green SMEs where the respondents had extensive reflections about their environmental practices. This lack of information led us to study a few more cases to gain more insight into prevalent environmental issues inside passive SMEs. Nevertheless, it became clear that fewer and fewer new ideas on the environmental management of passive versus green SMEs emerged from the field as cases were added.

According to Perry's (1998) research on the case study methodology, there is no consensus in the literature on the number of cases and interviews to be included in a case study, but 15 cases and 50 interviews can be considered as a maximum. The main issue here is not only the redundancy of information or theoretical saturation (Strauss and Corbin 1990) but also to keep the amount of information manageable, notably when interviews must be transcribed and codified. Based on 15 cases and 63 interviews (see Table 2), the field data collected for this study was more than sufficient for us to address the main objective of the research.

Table 2 summarizes the profile of the studied cases and main information concerning data collection.

Data Collection

Data collection was mainly carried out in 2010–2011. Two graduate research assistants in collaboration with the main researchers of this study conducted most of this data collection. Data collection was conducted in five main steps: collection of relevant documents, in-depth interviews with top managers, complementary interviews with other managers and employees, completion of the leader development profile (LDP), and debriefing interviews with top managers.

Table 2 Cases studied and interviews conducted

Cases	Manufacturing activity	Number of employees	Environmental commitment	Interviews performed			
				Top manager	Other managers	Employees	Total
1	Beer	100	Very high	2	3	0	5
2	Building structures	200	Very high	2	2	1	5
3	Kitchen furniture	150	High	3	2	2	7
4	Outdoor lighting	240	High	2	2	1	5
5	Kitchen paddles	10	High	2	0	2	4
6	Milk products	275	High	2	3	0	5
7	Furniture	225	Very low	1	2	0	3
8	Machinery products	20	Very low	1	2	0	3
9	Sheet metal	30	Low	2	3	0	5
10	Wood packaging	15	Low	2	1	0	3
11	Steel beams	33	Very low	2	2	0	4
12	Kitchen furniture	16	Low	1	2	0	3
13	Industrial equipment	60	Low	1	2	0	3
14	Electronics	100	Average	2	2	0	4
15	Furniture	75	Very low	2	2	0	4
			Total	27	30	6	63

First, external documentation employed to select cases (interviews with managers published in business newspapers, environmental statements, legal documentation, etc.) were used as much as possible to provide a preliminary overview of each SME's environmental commitment. When available, internal documents were also used. Documents collected made it possible to ask more specific questions during interviews to compare the data collected in the field with more formal information and to investigate environmental issues from different angles. This triangulation process, based on the integration and comparison of various data sources, tends to improve internal validity (Eisenhardt 1989). For example, the environmental commitment of case 1 was covered by various articles in newspapers in which this SME was presented as a model of sustainability. Information from these articles, including quite detailed interviews with the top manager, was compared with the data collected in the field, which proved to be consistent with external sources. Nevertheless, although it was possible to compare formal documents on sustainability issues of green SMEs with data from interviews, such comparisons were impossible with passive SMEs due to the quasi-absence of external and internal documents available on this issue.

Second, an initial in-depth interview with the top manager (generally the company owner–manager) was undertaken in order to clarify his/her vision of environmental issues, practices,

values promoted inside the organization, etc. This semi-directive interview was based on four main issues: initiatives for sustainability, environmental practices and integration of complexity, leadership and values, motivations and performance. This first interview with the top manager lasted approximately 1 h. On site visits were often undertaken after or before the top manager interview. This visit made it possible to have a better understanding of certain environmental challenges faced by SMEs.

Third, interviews were conducted with other managers and/or employees of each SME. These interviews were intended to delve deeper into the environmental leadership exhibited by top managers and to better understand organizational initiatives in this area. This semi-directive interview was quite similar to that used for top managers. These interviews lasted on average 30–45 min and were mostly conducted among managers involved in environmental initiatives (in proactive SMEs) or in a position to do so (in passive SMEs): environmental director, quality manager, VP marketing, etc. When possible, employees were also interviewed in order to obtain a different view on environmental management initiatives. Nevertheless, interviews with employees could not be conducted in every case (see Table 2), especially in passive SMEs where very few potential respondents were both available and knowledgeable.

Fourth, each top manager completed the LDP. The LDP was developed by Cook-Greuter (1999, 2004) in collaboration with Torbert (Fisher and Torbert 1991; Rooke and Torbert 1998, 2005) to accurately assess conventional and post-conventional stages of consciousness development in leaders. The instrument is an adaptation of the Washington University Sentence Completion Test (Loevinger, Wessler and Redmore 1970), which is one of the most widely used and best validated in the field of developmental personality assessment (Manners and Durkin 2001). The LDP is a language-based instrument based on 36 sentence completion items. Using an algorithmic formula, the scores for the 36 items are aggregated into a single score reflecting the principal stage of development at which the person operates. The LDP scoring protocol has undergone seven reliability tests over the past 20 years. Between 2005 and 2008, Cook-Greuter and other trained raters achieved a high Cronbach's a value of 0.91 for internal consistency between aggregated scores for 891 distinct profiles, leaving little doubt about the reliability of the scoring protocol (Torbert and Livne-Tarandach 2009). Once the LDP test was filled out by the top managers of our study, a certified rater determined each manager's stage based on how the sentences were completed. Cook-Greuter and associates, who have an extensive experience in this area, used the answers to the LDP test to assess the respondents' stage of consciousness development. These results were later compared to the level of SMEs environmental commitment. In order to avoid possible bias in the interpretation of the LDP, no indications on the objective of the study or the type of respondents were communicated to Cook-Greuter and associates. Moreover, managers completed the test after the main field study inside SMEs. The LDP test was passed independently from the case study data collection and interpreted by experts with no direct or indirect connection with this research project.

Fifth, in most cases, a debriefing interview was conducted with the top manager. This interview, which generally lasted 30–45 min, was scheduled after the field study and had two main objectives. The initial objective was to convey the results of the LDP test and provide all the necessary information to understand what it meant. The next objective was to clarify certain

issues raised during the case study. That being said, three of the top managers from the passive SMEs were not interested in this second interview or were not available for it.

In order to facilitate data analysis, the interviews with top managers, managers, and employees were audio recorded.

Data Analysis

Data analysis was based on the general evaluation of the level of the SMEs environmental commitment and the more in-depth process of data categorization and analysis proposed by grounded theory (Strauss and Corbin 1990; Glaser and Strauss 1967).

The SMEs' overall environmental commitment was independently evaluated on a five-level scale (from very low to very high) by the two research assistant involved in the data collection and by the main researcher of this study. For the following reasons, this evaluation of SMEs' environmental commitment was not influenced by the results of the LDP test on consciousness development:

- The researchers involved in the data collection and evaluation of SMEs environmental commitment were not informed of the LDP results at that time. LDP results were released months after the cases studies due to the delay in answering the questionnaire by managers and time required to analyze its results;
- In order to clearly separate environmental issues from the evaluation of consciousness development, the administration of LDP test (explanations of the test to respondents, follow up and contact with certified raters) was conducted by one of the researchers who was not involved in the evaluation of the level of SMEs environmental commitment;
- The three independent evaluation of the level of SMEs environmental commitment gave similar results. Moreover, these results were consistent with the information (documentation and preliminary interviews) collected before the case study (and long before the LDP test) to distinguish the samples of green versus passive SMEs.

The categorization process proposed by grounded theory makes it possible to delve deeper into the interpretation of the data collected. This process is based on the grouping, codification, and comparison of information based on similar concepts or themes emerging from the data collection (Strauss and Corbin 1990; Glaser and Strauss 1967). The qualitative analysis software QDA Miner was used to facilitate this inductive categorization process. First, audio recorded interviews were transcribed verbatim with word processing software and then transferred into QDA Miner software. Second, preliminary categories were defined based on the main themes of the interview guides. These categories were then refined, modified, and subdivided throughout the qualitative analysis process. The emergence of new categories reflecting field observations is one of the main features of grounded theory. These new categories addressed the relationship between the statements on environmental management and the aspects most likely to reflect differences in terms of consciousness development: systemic vision, relationship with stakeholders, anticipation of external pressures, etc.

In order to improve the reliability of the categorization process, two coders were involved in the data analysis. To enhance the coherence between data collection and data analysis, these two coders were also involved in the case study. Each coder was trained in QDA Miner software and used the same categorization grid. The emergence of new categories was discussed with the coders in order to maintain a common reference framework. The two coders independently coded the transcriptions of 10 interviews randomly selected in order to measure possible bias in the interpretation of categories. Inter-coder reliability was measured by the Krippendorff's a test. According to this test, measured with the QDA Miner software, the Krippendorff's a was 95.3 %. This is well above 80 %, which is generally considered excellent inter-coder reliability (Strijbos and Stahl 2007).

At the end of the categorization process, 5,450 passages grouped into 75 categories and 10 main themes were coded by using the QDA Miner software. The main themes of the categorization framework reflected the main lines of data collection: SME commitment for sustainable development, economic impacts, environmental management, main environmental issues, motivations and obstacles, environmental initiatives, employee involvement, governance and regulation, leadership and values, and stages of consciousness development. To address the objective of this study, data interpretation focused on two types of categories:

- The SMEs' environmental commitment and leadership (initiatives for sustainability, environmental practices, top manager's personal commitment, etc.). Analysis of these categories provided an overall picture of each case and made it possible to establish relationships between the SMEs' level of environmental commitment and the top manager's stage of consciousness development.
- The values and abilities underlying environmental leadership (long-range vision, management of complexity, personal concerns for sustainability issues, etc.). Analysis of these categories facilitated the interpretation of possible relationships between the environmental leadership and characteristics of the SMEs that are usually associated with post-conventional versus conventional stages: values, vision, concern for social transformation, etc. (Pfaffenberger et al. 2011; Brown 2011; Cook-Greuter 2004).

The next two sections on data analysis are structured around these two sets of categories. The most representative passages were extracted to illustrate the main findings of the study.

Environmental Commitment and Consciousness Development

The complex relationships between environmental commitment and the top manager's stage of consciousness development were analyzed through two main steps:

- The comparison between the evaluation of SMEs' overall environmental commitment and results of the LDP test;
- The qualitative analysis of the SMEs' environmental commitment for each stage of consciousness development covered by the LDP test.

First, the evaluation of SMEs environmental commitment after each case study was consistent with the initial distinction between green and passive SMEs. According to the average results of

this evaluation, the environmental commitment of only two SMEs (cases 1 and 2) were considered very high whereas four SMEs (cases 3, 4, 5, and 6) were rated as highly committed. All these SMEs belonged to the sample initially identified as green SMEs. With regard to the sample of passive SMEs, the environmental commitment of one SME (case 14) was rated as average, five (cases 12, 9, 10, 7, and 13) were rated as low and three (cases 9, 15, and 11) were rated as very low. These levels of SMEs environmental commitment were subsequently compared with results of the LDP test as soon as these results were available. In the small number of conceptual papers written on environmental leadership and consciousness development (van Marrewijk 2003; van Marrewijk and Hardjono 2003; Boiral et al. 2009; Rogers 2012), post-conventional managers are assumed to be more involved in initiatives for sustainability than their conventional counterparts. This assumption was confirmed by the close relationships between the case study data and LDP results. Consequently, all the post-conventional managers according to the LDP test ran green SMEs and were actively involved in corporate greening. Conversely, all the top managers from passive SMEs were rated as conventional according to the LDP test and did not appear very concerned with environmental issues.

Figure 1 represents the evaluation and the consciousness development of the top manager of each case according to the scale of Rooke and Torbert (2005). This representation illustrates the importance of each stage in relation to the global population of managers. Although the LDP results in our study did not cover all the nine possible stages (opportunist, strategist, and alchemist stages were not represented), the most common were covered (see Fig. 1). According to Rooke and Torbert (2005), the individualist, achiever, expert, and diplomat stages represent approximately 90 % of the managerial population. This distribution of managers among different stages is quite similar to others studies based on a larger population (Joiner and Josephs 2007; Kegan and Lahey 2009).

Second, the SMEs' environmental commitment was analyzed in light of the characteristics of the stages of consciousness development covered by the LDP test results (see Fig. 1): individualist, achiever, expert, and diplomat. In order to limit the length of the paper, the analysis that follows is focused on the most salient findings from the 15 cases studied that either reflect or contradict the main characteristics of each stages.


The Individualist Manager

The individualist stage represents the most common post-conventional stage and is characterized by a higher capacity to step back from conventional ways of thinking and to take into account the subjectivity of one's interpretations and complexity of organizational situations. Individualist managers are also more inclined to propose creative solutions, question existing rules, and promote participative approaches (Pfaffenberger et al. 2011; Joiner and Josephs 2007; Rooke and Torbert 2005).

These general features were quite in line with the unconventional type of environmental commitment carried out by top managers from cases 1, 2, 3, and 5. For example, in case 1, the top manager promoted atypical measures to protect the environment, in particular during a

facility expansion process. As a result, in order to avoid cutting down trees, she employed the services of a forestry engineer. More than three-dozen trees were saved or replanted and construction work was significantly reorganized in order to avoid environmental damage, despite the initial contractors' resistance to these measures, which he perceived as eccentric. In case 2, the top manager also proposed innovative measures to construct a green building: sustainable design, indoor environmental quality, energy efficiency, water harvesting, etc. These measures were undertaken under the leadership of the top manager despite huge resistance from shareholders and bankers who were reluctant to finance environmental measures perceived as unnecessary and too expensive. In case 3, the whole business model seemed focused on innovative initiatives for sustainable development: products made from natural and renewable materials, elimination of waste, installation of one of the largest private solar power systems in the province, distribution of 10 % of profits to environmental organizations, etc. In case 5, the top manager developed an original green-kitchen concept that was based, among other things, on the product's life-cycle and offsetting of carbon emissions.

Fig. 1 The greening of SMEs and consciousness development
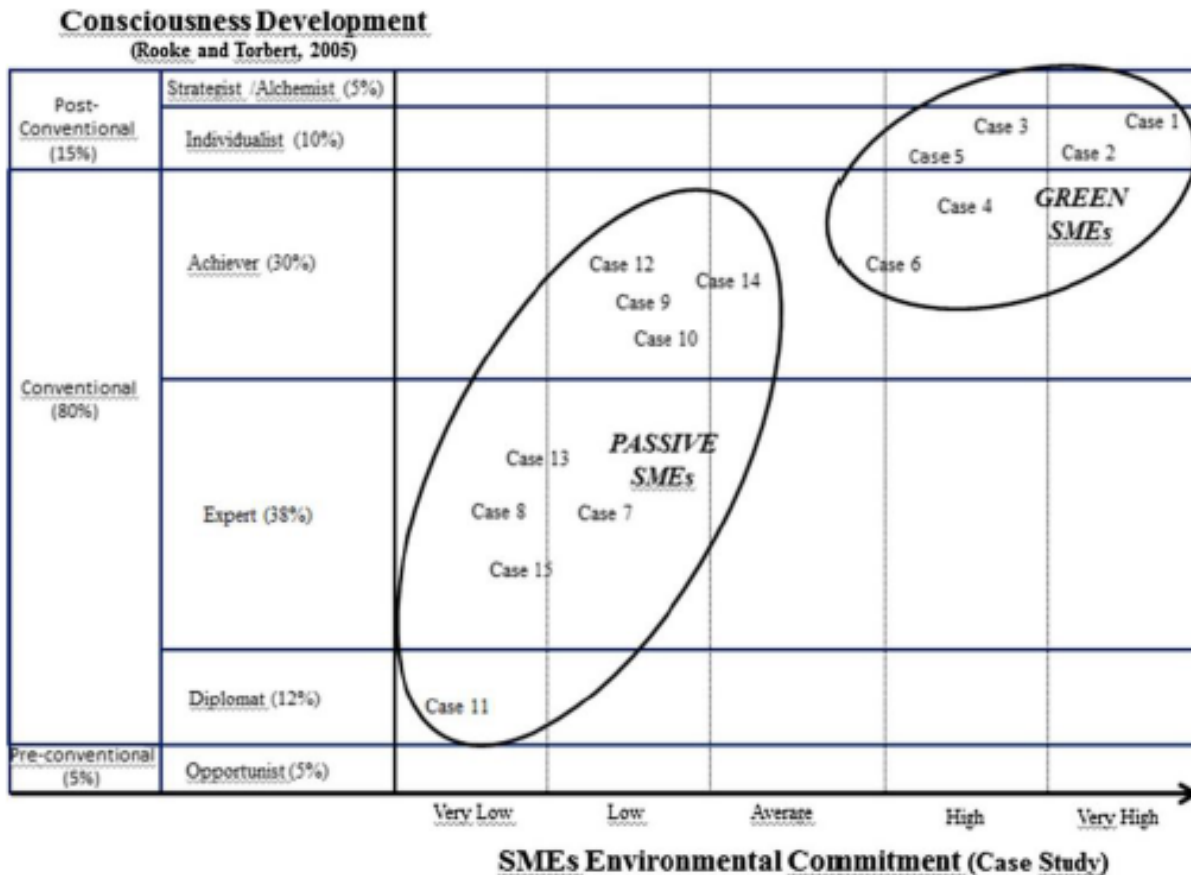
Although the environmental commitment of cases 1, 2, 3, and 5 were clearly driven by the top manager, interviews inside these organizations showed that most initiatives were based on a participatory approach and attention paid to employee suggestions. As anticipated, cases studies showed that SMEs run by post-conventional top managers were the most committed to environmental protection (see Fig. 1). Interviews inside these SMEs also confirmed that most

employees considered their top manager as a ''green leader'' clearly committed to environmental protection:

> *Protecting nature is obvious for her, it's always been on her mind.* (Dir. Marketing, Case 1)

> *She really is tough-as-nails when it comes to protecting the environment. She has fought against all the odds for that and she succeeded in making major changes to the company.* (Dir. Operations, Case 2)

> *He is very pro-environment, very proactive in the field. He clearly takes environmental issues to heart. He is always willing to contribute to the cause.* (VP Marketing, Case 5)

A broader vision of top managers' responsibility and concern for ethical issues that typically characterizes post-conventional stages of consciousness did not exclusively drive their commitment for the environment. The importance of responding to external pressures and ensuring the profitability of environmental actions was also mentioned, especially by top managers of cases 3 and 5. Nevertheless, these more conventional attitudes were not the main drivers of environmental initiatives. Moreover, they are not in contradiction with post-conventional stages, which by definition include and transcend the preceding levels (Cook-Greuter 2004; Wilber 2000).

The Achiever Manager

The characteristics of the achiever stage are well suited to leadership positions: focus on objectives and results, emphasis on effectiveness, ability to work in teams and to adapt to external demands, sense of responsibility, etc. (Rooke and Torbert 2005; Joiner and Josephs 2007). These characteristics can certainly facilitate the integration of environmental issues in day-to-day management. Nevertheless, such integration supposes that environmental issues be considered as an integral part of the organization's objectives and strategy.

This alignment with objectives and strategy was clearly established in cases 4 and 6. The case 4 environmental commitment was initially driven, to a large extent, by economic opportunities and environmental pressures to produce green outdoor lighting: promotion of energy efficiency by municipalities, pressure from environmental groups to reduce light pollution, etc.

The achiever top manager in case 6 seemed even more personally concerned by sustainability issues as such and explained in detail how documentaries on environmental degradation had had a huge impact on his green values. Nevertheless, the justification for his environmental commitment as top manager was embedded in economic and strategic issues rather than being explained in terms of personal values. To thrive in the highly competitive environment of the yoghurt industry, the strategy of this SME was therefore to make public and go forward with the ecological mindset and practices that were already present in the organization for decades. This strategy was the starting point for addressing a much wider range of environmental measures that contributed to reinforcing the company's green image and productivity: reduction of packaging, minimization of the ecological footprint, optimization of transports, etc. Overall, the top managers from cases 4 and 6 seemed the most concerned, of all the green leaders interviewed, by

the integration between their personal environmental values and their strong focus on improving economic performance.

This integration supposes both environmental values and measures or strategies to improve economic performance through corporate greening. Such conditions apparently did not exist in cases 9, 10, 14 and 16, where the companies were also run by achiever managers. In case 9, environmental issues were not considered to be essential. According to the top manager, the subcontracting activities of his company reduced the room to manoeuvre for environmental initiatives, which mostly depended on external suppliers. In cases 10 and 16, the top managers recognized that environmental issues were not a priority for their company and they did not see many economic or strategic reasons to implement proactive initiatives in this area. In case 14, an environmental policy had been developed and was posted at the company entrance. Nevertheless, this policy remained very general and relatively unknown; interviews inside the company confirmed that it was not really integrated into daily activities. In general, the achievers from passive SMEs remained quite skeptical about the justification of environmental initiatives and called for a pragmatic perspective taking into account the limited size and impacts of their organizations:

> *We feel concerned by environmental issues, but I don't think, given our size, that our company has a major impact. I don't think there's much I can do to correct that.* (Top manager, Case 12)

> *We are concerned about environmental actions but they shouldn't take priority over other important issues. We have to find a middle ground.* (Top manager, Case 14)

> *Maybe I am wrong, but I don't think we have much of an impact on the environment. So I don't see why we should implement any initiatives in this area.* (Top manager, Case 10)

Generally speaking, the achievers environmental commitment was quite variable (see Fig. 1), ranging from high (cases 4 and 6) to low (cases 12, 10, and 9). This finding shows that there is no obvious correlation between stages of consciousness development and environmental commitment, at least for the achiever stage. For example, the top manager of case 4 has demonstrated a strong vision for the environment and has ceased all operations of his facility to organize a conference on climate change. Nevertheless, although this type of measure at first glance seems amore in line with post-conventional stage thinking, the environmental commitment of the top manager of case 4 appeared to be mostly externally and economically driven.

The Expert Manager

The expert stage is characterized by a focus on rules, expertise, and knowledge. This focus may be useful to manage environmental issues characterized by technical aspects and scientific debates. Nevertheless, expert managers generally have difficulty in calling their own viewpoint into question, delegating responsibilities, and taking issues into account that appear to be outside their traditional area of expertise and action (Rooke and Torbert 2005; Joiner and Josephs 2007).

These difficulties were quite obvious in the way experts from cases 7, 8, 13, and 15 were reluctant to consider environmental issues as an integral part of corporate responsibilities. In fact, none of the four experts in the study were seriously involved or concerned by environmental issues (see Fig. 1). Three main types of attitudes reflected this lack of concern. First, top managers, especially from cases 7, 8 and 15, considered that environmental issues such as climate change had been quite exaggerated or were not necessarily scientifically proven. There was therefore no serious reason to take these issues into account within their company. Second, certain top managers, notably from cases 7 and 10, considered that environmental issues were not part of their area of expertise, and other respondents in the organization could speak about them more knowledgeably. Third, top managers from cases 13 and 15 highlighted the lack of internal expertise and resources to handle environmental issues. Whatever the reasons invoked, expert respondents were quite outspoken about their poor environmental commitment and knowledge:

> *I have no knowledge about these things. You should ask my engineer if you want more specific answers.* (Top manager, Case 7)

> *It's not a priority. We haven't gotten very far with regard to the environment.* (Top manager, Case 13)

> *I am far from being a specialist in environmental issues. I hear about it regularly and sometimes I read some articles. I think people have become more aware over time, but environmental issues are now very specialized.* (Top manager, Case 15)

Overall, contrary to achievers, the attitude of experts with regard to environmental issues was quite homogeneous and in line with the characteristics of this stage of consciousness development (see Fig. 1). Few managers, notably from cases 7 and 8, have recognized that certain polluting behavior such as throwing used oil in the backward were no longer acceptable, but this new ecological concern was associated with raising external pressures instead of personal values or organizational effectiveness.

The Diplomat Manager

The diplomat stage is characterized by a strong identification to the group, conformity with social rules, concern for appearances and conflict avoidance (Rooke and Torbert 2005; Joiner and Josephs 2007). Although this stage can encourage environmental attitudes if they are perceived as politically correct, commitment in this area is expected to be rather superficial, intended to keep up appearances without being really integrated into organizational practices (Boiral et al. 2009). Moreover, the conflicting aspects of environmental issues, scientific debates around problems such as climate change, and uncertainties about economic impacts, regulations and public policies in this area can reinforce the diplomat's resistance to substantial environmental actions. This attitude of resistance and conflict avoidance was clearly exhibited by the top manager of case 11, who was the only diplomat in our study:

> *I would like to see more agreement around environmental issues. I am quite disillusioned about the subjective messages and criticism coming from ecological groups. As long as this issue hasn't*

been updated and people continue to disagree on the real environmental impacts, I am not really interested in getting involved. (Top manager, Case 11)

Generally speaking, the case 11 manager appeared to be the least committed to the environment of all the SME managers interviewed (see Fig. 1). First, although the steel fabrication and transformation generated significant environmental and safety risks, the top manager claimed that his products were green because they could be recycled indefinitely: ''The advantage of steel is that it is a very environmental product, and people tend to forget that. Steel can be recycled and reused thousands of times.'' This very questionable argument was used with customers for marketing reasons and contributed to keep up appearances in spite of significant environmental challenges. Second, the case study showed that no real environmental measures were put in place inside the organization. Moreover, the top manager highlighted that environmental actions such as measures to improve employee awareness were unnecessary and costly: ''It's obsolete, it's a waste of energy. We have to focus our energy where it counts.'' Although this position may appear quite categorical, this top manager appeared above all unable to embrace a systemic vision of his role as an entrepreneur by including environmental responsibilities. Like many diplomat managers, he had difficulties throwing off the traditional economic expectations associated with his role and asserting his own values. Generally speaking, the study of case 11 did not shed light on salient information clearly in contradiction with the main features of the diplomat stage and its impact on environmental management.

In summary, the main findings of the study show a close relationship between, on the one hand, the nature and intensity of SMEs environmental commitment and, on the other hand, the top manager's stage of consciousness development according to the LDP test. Nevertheless, this relationship is complex and not always in line with the theoretical model employed, especially for achievers. These issues will be discussed at the end of the paper.

The Values and Abilities of Environmental Leadership

Although the managers' stage of consciousness development appeared to shape the nature and scope of their environmental leadership, these stages did not necessarily explain, in and of themselves, the reasons why post-conventional top managers were more committed in this area than their conventional counterparts. These reasons appeared to be closely related to the values and abilities associated with environmental leadership and those related to consciousness development in general, more specifically the emergence of post-conventional stages. The analysis of categories related to the values and abilities of environmental leadership made it possible to identify a few key distinguishing features between the leaders of green versus passive SMEs. These distinguishing features are complementary, not mutually exclusive and clearly connected to consciousness development:

- Motivations and personal values;
- Vision and focus of change;
- Reconciliation and integration of conflicting organizational goals;
- Responsiveness to external pressures and stakeholders;
- Complexity management and collaborative learning.

Motivations and Personal Values

One of the main features of consciousness development is the emergence of a wider and more altruistic set of values and motivations (van Marrewijk 2003; van Marrewijk and Hardjono 2003; Cook-Greuter 1999, 2000; Graham 1995). Whereas conventional and, to a larger extent, pre-conventional stages are mainly concerned by self-preservation (that is by needs for economic and professional survival, security and affiliation), post-conventional stages rather aim to contribute to the common good (to meet needs for self-esteem, actualization, and transcendence). The needs and values underlying environmental leadership in our study seemed to be shaped by the same type of distinction between self-preservation versus contribution to the common good. As such, top managers from passive SMEs were clearly skeptical about the relevance and usefulness of environmental commitment. In general, the environmental crisis and world-wide issues such as global warming and exhaustion of natural resources were not a real concern for their organization. Even when the importance of environmental issues was not denied from a general or personal point of view, it was not necessarily considered as part of the corporate responsibility, which mainly focused on the economy. As explained by the top manager in case 13 (expert): ''You have to distinguish between the values of the individual and those of the manager. You can't always assume they are the same. Personally, I might be concerned about environmental issues, but inside the company, I have other priorities to address.''

This decoupling of the managers' responsibilities from their broader environmental values was not observed in green SMEs. On the contrary, most top managers from these SMEs justified their commitment by the seriousness of the environmental crisis, even when the issues mentioned seemed quite removed from their direct business impacts. All top managers from green SMEs pointed out that businesses had an important role to play and that addressing the ecological crisis should be a central part of a manager's responsibility. Moreover, with the exception of case 6, these top managers stressed the importance of leading by example and being consistent with environmental values at work as well as in their day-to-day life.

> *It is important to demonstrate your environmental commitment. I prefer showing my personal commitment through concrete actions rather than by just speaking about it. When employees can see the changes themselves, then it becomes something real.* (Top manager, Case 5)

> *As entrepreneurs, we have a very important role to play in the environment. We have no choice but to play our part.* (Top manager, Case 2)

> *We didn't just make this investment for the company; we made it for the whole society.* (Top manager, Case 1)

Vision and Focus of Change

The salient need to contribute to the common good in post-conventional managers comes with a more comprehensive and benevolent vision of change. Indeed, the development of post-conventional stages is assumed to bring about a more systemic perspective and to privilege change strategies that integrate short-, middle- and long-term needs (Rogers 2012; Joiner and

Josephs 2007; Rooke and Torbert 2005). Conversely, conventional stages foster a more local perspective and a much short-term vision of change. This somewhat narrower perspective was clearly endorsed by leaders from passive SMEs. First, environmental actions were limited to specific and sporadic measures such as paper recycling, energy efficiency, etc. Interviews showed that top managers never seriously considered an overall vision so as to better integrate the environment or to question certain polluting practices. Second, respondents especially from cases 9, 10, and 13, often highlighted the lack of time to address long-range environmental issues. As stressed by case 9's top manager: ''Environmental challenges always seem so tough. They're too complicated to be dealt with quickly and we don't have the time to deal with them. We tend to choose the easiest way out, and that's only human, unless you're really, really committed.'' Third, certain top managers, especially from cases 9, 11, 13, and 15, criticized the lack of pragmatism and the abstract efforts that had to be deployed when trying to solve environmental issues inside SMEs: ''Sometimes we make jokes here about the thinkers. Maybe we need thinkers, but in our company, we don't have the time to think about our impact on planet earth!'' (Top manager, Case 15)

Conversely, according to top managers from green SMEs, environmental challenges were very concrete and entailed global changes inside and outside their organizations. In cases 1, 2, 3 and 6, the vision of the organization was focused, to a certain extent, on environmental issues. All green SMEs implemented systemic and complex changes to better integrate environmental issues into the main activities: production process, purchasing, research and development, etc. These changes were therefore far from sporadic, circumstantial or technical but rather involved the whole organization. Moreover, most top managers from green SMEs stressed the importance of promoting a long-term approach, and the legacy left to future generations—which is at the core of the sustainable development concept—was often evoked to justify investments in this area:

> *We need to think 100 years down the road. Sustainable development is a long-range goal and our society doesn't do that very well.* (Top manager, Case 1)

> *What drives me most is my concern for future generations. I am very worried about the heritage we'll leave behind. Are we going to leave a time bomb or can we defuse it before it's too late?* (Top manager, Case 2)

> *We need to rethink everything, reinvent everything; because nothing here has been designed to be green. The buildings, machinery, waste… there is a whole world out there that has to be reinvented now.* (Top manager, Case 4)

Reconciliation and Integration of Conflicting Organizational Goals

The emergence of post-conventional stages is often described as a process of integrating and transcending the lower-stage limitations while allowing a more comprehensive, flexible and inclusive view of the world to take its place (Cook-Greuter 2004, 2000; Pfaffenberger et al. 2011). This process supposes a greater ability to manage contradictions, conflicting goals and uncertainties. Conversely, conventional stages are generally marked by a compartmentalization of reality in terms of contexts, people and sets of interests which makes integration sometimes difficult, if not impossible. Statements concerning the need to meet economic and environmental goals were quite revealing of this poor integration ability. Economic constraints were clearly the

main obstacle to environmental initiatives in passive SMEs. In fact, a large part of the statements from the SMEs' top managers were focused on the costs and risks of undertaking environmental actions. First, according to these managers, there is clearly a win–lose relationship between environmental and economic goals, which undermines any attempts to reconcile them from the outset. Second, the economic crisis and limited resources in SMEs make it even more difficult to invest in this area. Accordingly, voluntary environmental initiatives were infrequent unless they were driven by market demands, led to clear economic opportunities or represented inexpensive options. In any case, the carrying out of these initiatives was mostly associated with fears of negative economic impact:

> *Environmental issues can have huge economic impact and undermine the survival of our company. I've put the question on the back burner for the moment.* (Top manager, Case 11)

> *If I have to fire 100 employees just because I implemented an environmental program, then I won't do it, that's for sure!* (Top manager, Case 14)

> *In the furniture industry, all the companies we have seen that endorsed these fine principles have now all gone bankrupt!* (Top manager, Case 15)

Leaders from green SMEs clearly did not endorse this win-lose rationale between environmental and economic goals. On the contrary, interviewees shared many illustrations of the win–win rationale. For example, the top manager of case 6 explained how the re-optimization of the delivery trucks distribution system contributed to significantly reducing both greenhouse-gas emissions and costs related to fuel consumption. Similarly, although the launch of organic products was not, at first, profitable, it eventually became one of the main sources of profits. Nevertheless, contrary to the often rigid positions on the supposed costs of environmental initiatives, this win–win rationale was rarely systematized or seen as a rule that could be taken for granted. The economic impacts of environmental initiatives thus appeared to be complex, contingent, and often uncertain. Moreover, the economic benefits were rarely presented as the main driver of environmental actions from green SMEs:

> *I didn't jump into environmental improvements just for the money. We are used to taking people and the environment into account too.* (Top manager, Case 1)

> *Environmental actions often represent expenses that only pay back within 3 or 4 years, sometimes even more.* (Top manager, Case 5)

That said, the top manager from a green SMEs acknowledged that the reconciliation of different bottom lines is a perpetual challenge and that privileging environment systematically is not viable:

> *A company cannot survive only through green actions but by making money. I am not here to save the planet Earth. I am a businessman who wants to be responsible. My commitment is to make money in keeping with my main stakeholders: the shareholders, employees and planet Earth. You cannot privilege one of these stakeholders at the expenses of the others.* (Top manager, Case 6)

Responsiveness to External Pressures and Stakeholders

Post-conventional stages are generally associated with the development of abilities to deal with different viewpoints and collaborate with stakeholders who represent various interests (Joiner and Josephs 2007; Rooke and Torbert 2005). By contrast, conventional stages appear mostly focused on meeting the dominant rules and social conventions and more concerned about adapting to external pressures than possible collaboration with different stakeholders. Interviews with conventional leaders showed that adaptation to environmental pressures was mostly reactive. Although most respondents from passive SMEs recognized that environmental issues had become an increasing concern in society, they essentially adopted a ''wait-and-see'' attitude with regard to possible external pressures. Certain respondents, especially from cases 11 and 15, viewed environmental issues as a trend that should not affect the company's ''business as usual'' approach. Other respondents, especially from cases 10, 15, 16, considered that promoting environmental actions was first and foremost the responsibility of governments rather than companies, whose role should be limited to adapting to existing rules. The importance of market pressures was also often highlighted. For example, according to the top manager of case 10, whatever its positive effect on the ecosystems, the adoption of the Forest Stewardship Council (FSC) environmental standard by his company had to be subordinated to customer demands:

> *Even if our company gets the FSC certification and I require that my suppliers be FSC certified, there is no real value added as long as customers don't require this standard. And I won't be able to increase the price of my products if my customers aren't ready to pay the extra price.*

Contrary to conventional top managers, post-conventional respondents from green SMEs clearly adopted a proactive attitude and even called for more environmental commitment and clearer public policies from the government, notably in cases 1, 2, and 4. Because of the companies green positioning and anticipation of increasing pressures from customers and society, this proactive attitude was not necessarily disinterested. Nevertheless, leaders from green SMEs also developed innovative environmental initiatives in collaboration with a large array of stakeholders. For example, case 1 contributed to environmental conservation projects with local associations and was actively involved in a public recycling agency. Case 5 collaborated with the local municipality in the construction of a bicycle path with the intention of reducing greenhouse-gas-emissions and improving healthy behavior among citizens and employees. Far from adopting a reactive, wait-and-see attitude, all top managers from green SMEs explained that they themselves had exerted pressures on suppliers and other stakeholders (government, municipalities, customers, employees, etc.) to promote specific environmental issues or encourage broader changes in society:

> *On several occasions, we have told other companies and retail shops that we don't want to work with them because of their lack of environmental commitment.* (Top manager, Case 3)

> *We give priority, in our choices, to suppliers who are really concerned about the environment because our mission is entirely focused on it.* (Top manager, Case 2)

Complexity Management and Collaborative Learning

Consciousness development can be described as a ''sequence of increasingly complex and coherent stages of reasoning'' (Cook-Greuter 2000, p. 228). In this regard, managers who reached post-conventional stages of consciousness are expected to better manage cross-cutting, interdisciplinary and complex issues, as well as to stimulate employee involvement and perform transformative leadership (Joiner and Josephs 2007; Rooke and Torbert 2005; Bartunek et al. 1983). Conversely, it is generally assumed that conventional managers are more focused on well-defined and specific issues that can be more easily solved through established structures and practices. This kind of focus often falls short when it comes to environmental management, which entails working with complex issues transcending organizational boundaries and requiring a collaborative approach throughout the organization (Boiral et al. 2009). In this case study, top managers from passive SMEs were generally perplexed about how to manage the complexity of environmental challenges. To begin with, many of our questions remained unanswered because the respondents apparently did not understand the questions raised by the interviewers or did not seem to know how to handle them. For example, the top manager of case 12 recognized that although he could not answer most of our questions, the interview raised environmental issues he was unaware of but felt should be better addressed in the future. Second, none of the top managers from the passive SMEs clearly highlighted the importance of promoting a participative approach inside the organization to better address the environmental issues or obtain innovative suggestions in this area. Third, some top managers, especially from cases 9 and 16, noted the excessive complexity of environmental issues, the need for simple solutions to manage them inside SMEs, and the lack of internal expertise: ''I wouldn't say that environmental issues are not important, but they are much too complicated to manage. We need to make things simpler before deciding whether to embark or not'' (Top manager from Case 9).

The complexity of environmental management was clearly acknowledged by post-conventional managers. For example, the top managers from cases 4 and 6, who implemented a product life-cycle analysis, highlighted the high complexity of assessing the real environmental impacts of their products from cradle-to-grave. Nevertheless, environmental complexity was essentially perceived as an opportunity to challenge certain misconceptions about the real environmental impacts and improve internal practices through cross-cutting actions involving various departments. In general, environmental management was perceived as a collective learning process requiring an active involvement from both top managers and employees. Contrary to the situation in passive SMEs, employees from green SMEs generally confirmed that their top managers were very concerned about their participation. In spite of the small size of most companies, various training and awareness programs were developed, notably in case 2. In case 4, a green committee was also implemented to encourage employee suggestions and initiatives. Whatever the measure implemented, environmental initiatives from green SMEs seemed quite decentralized and called upon manager abilities to stimulate employee participation:

> *We asked people in the factory to become more involved and to check for themselves if they thought that someone didn't think about something. The recycling increased from 0 to 85 % in the very first week.* (Top manager, Case 5)

> *What works best is to challenge people to see how they can make what they're doing more ecological. They have to find these ecological solutions by themselves. It allows them to progress and succeed, to be more creative.* (Top manager from Case 1)

Table 3 summarizes the relationships between the values and abilities associated with post-conventional stages and the main tendencies observed in the environmental management of green versus passive SMEs. Generally speaking, whatever the organization considered, environmental leadership was fostered by a more systemic perspective, a long-range view of change, a better capacity to integrate environmental and economic goals, and the ability to deal with various stakeholders, to manage complexity and to promote internal participation. The fact that these values and abilities are clearly related to the main aspects of consciousness development certainly explains, to a large extent, why post-conventional top managers appeared to be more able to meet environmental challenges.

Discussion

The objective of this study was to analyze how the abilities and values associated with the various stages of consciousness development can influence environmental leadership and management in SMEs. The results of the study show that the most highly committed SMEs were ruled by post-conventional leaders. Conversely, all passive SMEs were ruled by conventional leaders. The study also uncovered the relationship between the main characteristics of stages of consciousness development and the way environmental issues were managed by the SMEs' top managers. Thus, as suggested by developmental theories, individualist managers from cases 1, 2, 3, and 5 promoted innovative environmental measures and were more inclined to promote participative approaches than their conventional counterparts. Their environmental commitment was also more driven by personal values and global ethical concerns. Conversely, achiever managers from cases 4, 6, 9, 10, 14 and 16 were involved in environmental management insofar as initiatives in this area were coherent with the corporate strategy and were not perceived as a threat to economic performance. Expert managers from cases 7, 8, 13, and 15 were all skeptical about the raison d'être of environmental commitment, which tended to be seen as a very general concern that was outside of their traditional area of expertise and responsibility. Finally, the diplomat manager from case 11 appeared to be the most passive with regard to environmental initiatives because of the uncertainties, economic impacts and conflicting elements involved.

Table 3 Post-conventional characteristics and the greening of SMEs

Main values, vision and abilities of post-conventional stages	Main tendencies observed in the environmental management and leadership of green SMEs	Main tendencies observed in the environmental management and leadership of passive SMEs
Altruistic set of needs and values, broader and systemic perspective	Global environmental crisis is often evoked to justify green initiatives;Entrepreneurs have a major role to play and should endorse broader values;Top managers should lead by example and demonstrate their personal commitment	Addressing global environmental issues is not part of corporate responsibilities;Entrepreneurs should remain focused on economic issues and company survival;Personal values should not necessarily translate into corporate commitment
Comprehensive and benevolent vision of change, with a long-range focus	Global and complex organizational changes to integrate environmental issues into the main activities and departments;Promotion of a long-term approach;Concern for future generations	Sporadic and very restricted environmental measures;No overall and long-range view of change;Abstract perception of long-range environmental concerns and policies
Integration of apparently conflicting goals and interests	Many possibilities to reconcile environmental and economic objectives;Complex and contingent economic consequences of green initiatives;Economic impacts are not the only aspect taken into consideration	Opposition between environmental and economic interests;Economic aspects prioritized;Environmental initiatives quite unlikely or even undesirable because of economic crisis and SMEs' lack of resources
Handling of different viewpoints and collaboration with stakeholders	Anticipation of external pressures;Environmental collaboration with various stakeholders;Environmental pressures exerted on certain suppliers and stakeholders	Wait-and-see attitude with regard to environmental pressures;Environmentalism perceived as a trend;Market demand and regulation seen as main drivers for environmental action
Better management of complexity and collaborative learning	Promotion of cross-cutting changes based on product life-cycle analysis;Call for employee participation, awareness actions and collective learning to address the complexity of environmental issues	Reluctance to address complex and cross-cutting environmental issues;Lack of internal awareness;Call for simple and straightforward solutions adapted to SMEs' resources and capabilities

Contributions

The main contribution of this study is that it uncovers a fundamental psychological dimension of environmental leadership that has until now remained largely underexplored. The study helps us to better understand not only the actions of environmental leaders, but perhaps more importantly what is underlying and informing those actions. The results of this study call into question the prevailing instrumental and monolithic vision of environmental leaders by demonstrating the underlying values and thinking behind their commitment to corporate greening.

The study also helps bridge the gap between environmental management and developmental theories. Although a few studies have proposed a conceptual framework to better understand environmental management from a developmental perspective, research in this area has remained largely theoretical or focused on post-conventional upper-stages, which represent a very small portion of the whole managerial population (Brown 2011). The results of this study make it possible to illustrate how the most common stages of consciousness development can influence, in practical terms, the values and practices of environmental managers. Moreover, contrary to the mainstream approach of environmental management, this study not only focused on green leaders or business models in this area, but also on the practices of passive SMEs.

Such a comparison between leaders from green and passive SMEs remains underexplored in the literature. This study helps to explain the main differences between these leaders, not only in terms of environmental management but, more importantly, in terms of values, meaning systems and abilities. These differences could shed new light on controversial debates in the literature, such as the economic impacts of environmental actions (Ambec and Lanoie 2008; Roy et al. 2001). The traditional opposition between a win–win and a win–lose rationale could therefore be related, to a certain extent, to the stages of the managers' consciousness development. As shown

in this study, post-conventional top managers seemed to have developed more abilities to integrate conflicting goals and to improve economic performance through environmental initiatives. Overall, the win–lose rationale endorsed by certain managers and politicians could be related to the less flexible and more conflicting view of the world that is found in more conventional stages.

Overall, this study helps to re-examine various environmental issues and practices from a new developmental perspective that focuses on the values, worldview and abilities underlying corporate greening. Moreover, the study contributes to the vast literature on developmental theories, which have remained quite anthropocentric in overlooking environmental issues (Boiral et al. 2009). Environmental commitment could emerge as one of the main implications of consciousness development. From this perspective, resolving the global environmental crisis could depend, to a certain degree, on the development of post-conventional stages among economic and political leaders, or even the whole population. The results of the study suggest that these stages could play a significant role in the emergence of ethical values and abilities generally associated with environmental leadership in the literature (Shafer 2006; Crossman 2011; Egri and Herman 2000; Metcalf and Benn 2013).

Limitations and Avenues for Future Research

An analysis of the limits of this study can help identify directions that future studies of this topic might take. First, carrying out a single case study is far from sufficient to measure or extrapolate relationships, even though it makes it possible to delve deeper into complex issues (Yin 2003; Eisenhardt 1989). Because it is only based on 15 cases, the results of this study can hardly be generalized, nor be regarded as sufficient to prove the theory on the impacts of stages of consciousness on environmental leadership. The main objective of qualitative studies is not to validate a theory and test hypotheses, but instead to explore new ideas and delve deeper into the understanding of complex social phenomena. Quantitative research based on a larger sample could be considered in order to confirm the relationships highlighted in this study. Nevertheless, analyzing the real environmental commitment of managers and their stage of consciousness development though large scale studies raises serious methodological challenges. Moreover, the complexity of the abilities, values, and practices entailed in environmental leadership can hardly be captured through questionnaires and requires, as much as possible, an in depth analysis of each organization. Given these difficulties, more qualitative studies should be undertaken among various types of organizations and leaders.

Second, although this study has covered the most common stages of consciousness development, certain stages remained unexplored or under-represented. This finding may relativize the relationships observed between certain stages of consciousness development and environmental leadership, and call for further research. Consequently, although certain top managers of green SMEs were very committed to supporting the environment, none of them were rated as Strategist or Alchemist in the LDP test. This result may appear surprising given the supposed relationship between post-conventional stages and environmental leadership. Nevertheless, it is clearly not necessary to be a strategist or an alchemist—who represent \5 % of the population—to be highly committed to environmental values. On the contrary, the results of the study show that conventional managers (achievers) can demonstrate strong environmental leadership. Generally

speaking, the sample limits did not make it possible to explore all possible links between stage of consciousness and environmental leadership. For example, only one top manager of the study (case 1) was a diplomat. It would be interesting to analyze to what extent diplomats, who represent 12 % of the whole population of managers (Rooke and Torbert 2005), can be involved in environmental initiatives. The same observation apply to experts, who represent almost 40 % of the managerial population. Although all the experts in our study ran passive SMEs, there is no doubt that certain green leaders fall into this category. Likewise, it is reasonable to assume that certain post-conventional leaders may be reluctant to commit themselves to environmental management. Empirically exploring the strengths and limitations of each stage of consciousness development in terms of environmental leadership would provide a more comprehensive picture of how the top managers' stages of consciousness development can impact corporate greening.

Third, this study is based on the developmental perspective, which has certain limits. Theories of adult development tend to assign post-conventional stages greater value in terms of abilities, value system and vision than conventional and pre-conventional stages (Kegan 1994; Cook-Greuter 2004; Rooke and Torbert 2005). Since post-conventional stages comprise approximately 15 % of the adult population, this theory may appear elitist for some audiences. Moreover, although reflections on consciousness development have a long history, notably in Asian cultures, the values and emphasis on cognitive development underlying the dominant models of adult development in the literature (Cook-Greuter 2000; Kegan 1994) could seem culturally biased since the mainstream research in this area has been conducted largely in Western countries. Furthermore, if stages of consciousness development satisfactorily explain values and worldviews, the way to encourage the emergence of post-conventional stages needs to be further clarified, addressing the misconception that they can be directed and controlled by organizations (Baron and Cayer 2011). Finally, the models on consciousness development are grounded in values and meaning structures that are difficult to measure and circumscribe in terms of behavioral operationalization (Pfaffenberger et al. 2011).

To address some of these limitations, future research could focus on the impact of cultural differences on the values and abilities associated with environmental leadership and consciousness development. The conduct of studies on environmental leadership in SMEs from various countries could shed light on different values, vision and abilities, which might differ from the characteristics of post-conventional stages. Future research could also explore the conditions fostering both environmental leadership and consciousness development. For example, the education of leaders and their exposure to similar ethical values held societally (i.e., by family, peers, and communities) could have an impact on their environmental commitment as well as their stage of consciousness development. Such research supposes an exploration of managers' background, personal history and other enabling factors that lie outside the scope of this present study. Finally, future research could delve deeper into certain behavioral aspects of the relationships between environmental leadership and stages of consciousness development. Although research on these stages have mostly been focused on the meaning system of individuals, it is reasonable to suppose that they can shape specific behaviors for the environment. For example, future research could explore the relationships between stages of consciousness development and different types of organizational citizenship behaviors for the environment (OCBE), which have been defined as ''individual and discretionary social behaviors not explicitly recognized by the formal reward system and contributing to improve the

effectiveness of environmental management of organizations'' (Boiral 2009, p. 223). Given that post-conventional stages are assumed to be less dependent on conventions and established meaning structures, it is reasonable to suppose that they tend to favor discretionary initiatives such as OCBEs.

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