Managers' citizenship behaviors for the environment: A developmental perspective

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Accepté pour publication dans : *Journal of Business Ethics*, 2016.

Abstract

The objective of this longitudinal study is to analyze the intrinsic drivers and values underlying managers' organizational citizenship behaviors for the environment (OCBEs) from a developmental psychology perspective based on measuring the stages of consciousness that shape the meaning-making systems of individuals. At time 1, the stages of consciousness of 138 managers were qualitatively assessed using the Leader Development Profile test. At time 2, a quantitative survey measured the environmental beliefs and OCBEs of these managers. The links between stages of consciousness, environmental beliefs, and OCBEs were analyzed using hierarchical regressions. The main findings show that managers' stages of consciousness positively influence two types of OCBEs, namely eco-initiatives and eco-helping, while environmental beliefs influence eco-helping and eco-civic engagement but do not appear to be connected with the stage of consciousness development. This paper first contributes to the literature on corporate greening by shedding more light on the aspects of behavioral and developmental psychology that underlie environmental leadership. Second, it bridges the gap between theories that have developed separately by showing the interconnectedness between the managers' stage of consciousness and the more concrete environmental behaviors in the workplace that could have emulative effects throughout the organization.

Keywords: Corporate greening, Developmental psychology, New Environmental Paradigm (NEP), Organizational citizenship behaviors toward the environment (OCBE), Personal environmental beliefs, Stages of consciousness

Introduction

Environmental leadership is generally considered to be an essential component or even a prerequisite for corporate greening (Bansal and Roth 2000; Boiral et al. 2014; Egri and Hermann 2000; Metcalf and Benn 2013). Managerial environmental commitment is often analyzed through the implementation of formal practices such as the adoption of the ISO 14001 management system, introduction of new performance indicators, launch of a sustainability report, or development of training programs (Bansal and Roth 2000; Egri and Hermann 2000; Galpin and Whittington 2012). Although these organizational-level practices are essential to environmental management, many initiatives in this area are based on individual, voluntary, and informal

behaviors, which are not taken into account by formal management systems. The complexity and diversity of environmental issues require non-prescribed behaviors that are rarely covered by organizational programs and procedures (Boiral 2009; Ones and Dilchert 2012). Moreover, the success of initiatives in this area depends on employee collaboration and the support of managers (e.g., Cantor et al. 2012; Ramus 2001; Ramus and Steger 2000). To be effective and credible inside the organization, this support must be reflected in concrete actions and cannot be only based on general statements or managerial practices. Generally speaking, the day-to-day environmental behaviors of managers such as recycling habits, personal involvement in environmental programs, or informal support for green initiatives in the workplace tend to speak louder than words alone, especially in the eyes of employees (Boiral et al. 2015).

Although the literature on corporate greening has essentially focused on formal practices, recent studies have analyzed the role of organizational citizenship behaviors toward the environment (OCBEs), which are based on non-prescribed, non-rewarded, and informal green initiatives in the workplace (Boiral 2009; Daily et al. 2009; Lamm et al. 2013; Smith and O'Sullivan 2012). According to the burgeoning literature in this area, employees' OCBEs can have a significant impact on environmental performance and various studies have explored their main determinants (e.g., Lamm et al. 2013, 2015; Paillé et al. 2013, 2014; Temminck et al. 2015). Nevertheless, if employees' OCBEs appear to be an essential aspect of corporate greening, the role of managers' voluntary and informal environmental behaviors could be even more important. Managers' behaviors can indeed serve as an example inside the organization and tend to be emulated by employees (Bowler et al. 2010; Yaffe and Kark 2011). They also send a signal to the whole organization about managers' values and priorities. According to this perspective, analyzing the determinants of managers OCBEs can contribute to a deeper understanding of environmental leadership and corporate greening. Nevertheless, managers' OCBEs have largely been overlooked in the literature, which has essentially focused on employee-level initiatives. Moreover, the literature has remained focused on the organizational and extrinsic determinants of OCBEs rather than intrinsic motivations such as the personal values, worldviews, and capabilities of individuals.

The main objective of this paper is to analyze the inner motivations and values underlying managers' OCBEs from a developmental psychology perspective, more specifically, the theory of consciousness development. This theory is focused on the psychological aspects shaping the raison d'être, underlying motives, and worldviews of individuals (e.g., Cook-Greuter 2000, 2004; Loevinger et al. 1970; Prinsloo 2012; Ryan and Deci 2000; Torbert and Livne-Tarandach 2009). These worldviews develop gradually across an individual's lifespan, from childhood to adulthood, through different stages organized in a hierarchical and sequential manner (Baron and Cayer 2011, Loevinger 1983; Manners and Durkin 2001; McCauley et al. 2006; Rooke and Torbert 1998). The theory of consciousness development offers a relevant approach for analyzing the intrinsic drivers of OCBEs. Intrinsic drivers are personal motivations that do not depend on external rewards, formal procedures, or social pressures. These motivations can be influenced by the meaning-making system and worldview associated with different stages of consciousness. The literature on management and stages of consciousness development—or ego development—has shown the significant role these stages play in managers' leadership, effectiveness, and ways of interacting with others (Baron and Cayer 2011; Joiner and Josephs 2006; Rooke and Torbert 1998, 2005). Likewise, more recent research on environmental leadership has shown the importance of these stages to corporate greening (Boiral 2009; Boiral et al. 2014; Brown 2012;

Rogers 2012). Nevertheless, their concrete impacts on specific behaviors, including OCBEs, have not been investigated.

This paper contributes to the literature on environmental leadership and corporate greening by analyzing to what extent the main categories of OCBEs are driven by managers' stages of consciousness. The study also analyzes the influence of managers' personal environmental beliefs, as measured by their adherence to the New Environmental Paradigm (NEP). Finally, the paper bridges the gap between theories that have developed separately and sheds new light on unexplored determinants of OCBEs.

The remainder of the paper is structured as follows. First, the literature on OCBEs and its relationship to the developmental psychology perspective on environmental leadership is analyzed. Second, the hypotheses of the study are explained. Third, the methodology of the empirical study and its main results are presented. Last, the main contributions and limitations of the paper are discussed.

Theoretical Background and Hypotheses

Corporate Greening Through Managers' OCBEs

Corporate greening depends to a large extent on individuals' pro-environmental behaviors inside the workplace. The contribution of these behaviors to the successful implementation of environmental programs and the improvement of organizational performance in this area has been highlighted by empirical research (e.g., Boiral et al. 2015; Ones and Dilchert 2012; Paillé et al. 2014; Ramus 2001; Roy et al. 2013). For example, changes in working behaviors are considered essential to the implementation of pollution prevention programs aimed at reducing waste at the source (Boiral 2005; Bunge et al. 1996; Hanna et al. 2000; Hart 1995). Likewise, eco-innovations for solving environmental problems, reducing impacts, or developing eco-efficient products often rely on employee suggestions and initiatives (Boiral 2002, 2009; Lane and Robinson 2009; Ramus 2001, Ramus and Killmer 2007; Ramus and Steger 2000). Research on the implementation of environmental management practices and systems such as ISO 14001 has also demonstrated the key role of employees' involvement in improving the effectiveness of those systems (Boiral and Henri 2012; Christmann and Taylor 2006; Heras-Saizarbitoria et al. 2011). Where this involvement is insufficient, those systems are tend to be disconnected from daily activities and to be implemented symbolically rather than substantially (Boiral 2007; Jiang and Bansal 2003; Yin and Schmeidler 2009).

Although the contribution of workplace pro-environmental behaviors is often highlighted in the literature, the nature and scope of these actions are only rarely specified. Research in the area of OCBEs has attempted to address this gap in the literature by focusing on voluntary rather than organizationally prescribed behaviors (Boiral 2009; Daily et al. 2009; Lamm et al. 2013; Smith and O'Sullivan 2012; Temminck et al. 2015). OCBEs have been defined as ''individual and discretionary social behaviors that are not explicitly recognized by the formal reward system and that contribute to a more effective environmental management by organizations'' (Boiral and Paillé 2012, p. 431). The emerging literature in this area has analyzed the scope, importance, and possible drivers of OCBEs. The research on these three aspects is summarized below.

First, the scope and applications of OCBEs have generally been considered as an extension, in the environmental arena, of the traditional concept of organizational citizenship behavior (OCB), which has remained focused on extra-role behaviors and social relationships inside the work environment (Organ et al. 2006). According to Ramus and Killmer (2007), individual and discretionary ecological initiatives contribute to social welfare and therefore can be considered to be a form of pro-social behavior. Boiral (2009) has analyzed how the main dimensions of OCBs—which, according to Organ et al. (2006), include helping, sportsmanship, organizational loyalty, organizational compliance, individual initiative, and self-development—could apply to environmental issues. Lamm et al. (2013) have proposed a list of twelve OCBEs related to various office activities such as the recycling of containers, using scrap paper, and double-sided printing. The OCBE measurement scale developed by Boiral and Paillé (2012) is based on more inclusive dimensions of eco-initiatives (discretionary behavior and suggestions), eco-helping (voluntarily helping colleagues to better integrate environmental concerns), and eco-civic engagement (voluntary participation in an organization's environmental programs and activities).

Second, the critical role of OCBEs in organizational greening has been emphasized in most research in this area. Drawing on the extensive literature on OCBs and organizational effectiveness (e.g., Chun et al. 2013; Koys 2001; Podsakoff et al. 2000). Daily et al. (2009) have hypothesized that OCBEs improve environmental performance through extra-role initiatives. According to Boiral (2009), such improvement is related to the diversity and complexity of environmental issues, which cannot be managed through formal management systems alone and require the spontaneous and voluntary involvement of individuals. In the same vein, Ones and Dilchert (2012) estimate that less than 30 % of employee green behaviors are required or part of job duties, which means that most of these behaviors are based on OCBEs. The sharing and use of tacit environmental knowledge also imply the development of OCBEs (Boiral 2002). Likewise, the implementation of environmental programs requires collaborations and helping relationships between employees, which are facilitated by OCBEs (Boiral 2009; Daily et al. 2009; Paillé et al. 2015). Finally, recent empirical studies conducted in Canada and China have shown a positive relationship between OCBEs and environmental performance (Boiral et al. 2015; Paillé et al. 2014).

Third, the possible drivers of OCBEs have been explored in various studies. Ramus and Killmer (2007) have hypothesized that supervisory support, social norms, personal predisposition, and self-efficacy influence OCBEs. Similarly, according to Daily et al. (2009), OCBEs depend on supervisory support, perceived corporate social responsibility, environmental concern, and organizational commitment. Lülfs and Hahn (2013) have proposed a theoretical model in which OCBEs are driven by various motivational and contextual variables (e.g., perceived behavioral control, organizational context, awareness of need, awareness of consequences, and social norms). More recently, a few empirical studies have investigated the determinants of OCBEs. Certain studies have shown that OCBEs are influenced by social exchange processes involving perceived supervisor support, perceived organizational support, psychological contract, and employee commitment (Cantor et al. 2012; Lamm et al. 2013, 2015; Paillé et al. 2013; Paillé and Raineri 2015; Temminck et al. 2015). The role of other determinants such as environmental values and perceived behavioral control (Boiral et al. 2015), peer relationships (Paillé et al. 2015), and strategic human resource management (Paillé et al. 2014), has also been evidenced.

Although these studies have improved our understanding of the nature and importance of OCBEs, the empirical literature remains limited to certain categories of employees and is essentially focused on a few extrinsic variables related to human resource management. First, although the concept of OCB can apply to managers (Bowler et al. 2010; Yaffe and Kark 2011), most studies on OCBEs are limited to employees' behaviors. As highlighted by Boiral et al. (2015), managers' OCBEs are essential to corporate greening, and more research is needed to understand their role. Generally speaking, managers' behaviors tend to be emulated inside the organization and can therefore be used to demonstrate personal commitment and to lead by example (Bowler et al. 2010; Yaffe and Kark 2011). Conversely, the lack of consistency between talk and action appears to be one of the main pitfalls of environmental management, which is too often focused on appearances rather than substance (Aravind and Christmann 2010; Boiral 2007; Christmann and Taylor 2006; Jiang and Bansal 2003; Yin and Schmeidler 2009). In this context, OCBEs appear to be an important aspect of environmental leadership and a way to demonstrate managers' real commitment. Moreover, as the literature based on the social exchange theory of OCBEs highlights (e.g., Cantor et al. 2012; Lamm et al. 2015; Paillé et al. 2013; Paillé and Raineri 2015; Temminck et al. 2015), managerial and organizational support represent essential drivers of employees' pro-environmental behaviors. One can assume that the OCBEs exhibited by managers are perceived by employees as a concrete signal of such support and therefore have a catalyzing effect throughout the organization.

Second, research on the main drivers of OCBEs has remained focused on extrinsic variables related to organizational context (e.g., social norms, supervisory and organizational support, and social exchange processes). The literature's emphasis on traditional managerial and organizational variables raises questions about the supposedly discretionary, non-rewarded, and informal nature of employee citizenship behaviors, which in many cases may be less voluntary than generally assumed (Vigoda-Gadot 2007). Conversely, the role of intrinsic drivers and deeper psychological aspects that could explain voluntary environmental initiatives has been clearly overlooked in the literature. Intrinsic motivations have been defined as the ''motivation to perform a task or activity when no apparent reward is received except that directly involved with the task itself'' (Daniel and Esser 1980, p. 566). Intrinsic motivations are generally associated with psychological aspects such as the attitudes, interests, capacities, and self-determined challenges of individuals that influence one's inherent satisfaction in an activity and that do not depend on external influences, rewards, or social conditions (Cho and Perry 2012; Daniel and Esser 1980; Ryan and Deci 2000). If, as hypothesized by OCBE theory, managers' OCBEs are genuinely voluntary and not based on external pressures, rewards, or organizational procedures, one can assume that they depend, to a certain extent, on intrinsic drivers and self-determined aspects such as personal values, worldviews, and capabilities (Raineri and Paillé 2015).

The theory of stages of consciousness provides a promising and unexplored approach to shed more light on these intrinsic and psychological aspects that may underlie OCBEs.

The Developmental Psychology Perspective on Environmental Leadership

Generally speaking, developmental theories are focused on structural changes that occur over time through different stages reflecting an individual's psychological development in aspects such as cognitive capabilities, values, interpersonal awareness, and character (e.g., Cook-Greuter 2004; Cook-Greuter and Soulen 2007; Manners and Durkin 2001; McCauley et al. 2006; McCrae

and Costa 1980; Rooke and Torbert 1998). Piaget's pioneering theory on the cognitive development of children and adolescents through stages characterized by increasing levels of complexity in reasoning, moral judgment, and behavior is one of the most widely used developmental psychology approaches (Cook-Greuter 2004; Loevinger 1983; Piaget 1997; Snarey et al. 1983). Other approaches have focused on individuals' development of values and moral consciousness. For example, Kohlberg's theory of moral development has been extensively used in the business ethics literature (Hannah et al. 2011; Prinsloo 2012; Trevino 1992). Likewise, Grave's theory of value systems is based on different stages of development and has been used to analyze the motivations and values associated with various levels of corporate sustainability (van Marrewijk and Hardjono 2003; van Marrewijk 2003). Although it is closely related to other developmental psychology approaches[1], the theory of stages of consciousness is more inclusive and assumes that the cognitive, affective, moral, and interpersonal aspects of ego development are inextricably linked (Cacioppe and Edwards 2005; Cook-Greuter 2004; Manners and Durkin 2000, 2001; McCauley et al. 2006; Snarey et al. 1983). This theory has been supported by many empirical studies, most of them based on the Washington University Sentence Completion Test (WUSCT) and the Leadership Development Profile (LDP); the validity and reliability of the latter has been widely studied (e.g., Cook-Greuter 2004; Cook-Greuter and Soulen 2007; Manners and Durkin 2001; Torbert and Livne-Tarandach 2009). Stages of consciousness development have been defined as ''coherent systems of meaning making that shape the way people know and experience reality'' (Cook-Greuter 1999, p. 15). Also called stages of ego development, these stages are related to different worldviews, competences, emotional experiences, and values, all integrated into a coherent whole by individuals throughout their life (Baron and Cayer 2011; Cook-Greuter 2000, 2004; Pfaffenberger et al. 2011). According to this perspective, the stages of consciousness are not monolithic but organized around increasingly complex, integrative, and less egocentric worldviews (Fisher and Torbert 1991; Harung et al. 2009; Loevinger et al. 1970; Rooke and Torbert 1998, 2005). Each stage includes and transcends the preceding levels, while providing a more complex and comprehensive perspective (Cook-Greuter 2004; Drath et al. 2008; Prinsloo 2012). Stages of consciousness are not limited to values but are also characterized by the personal capabilities, worldviews, and action logics that can have a direct impact on leadership and organizational behaviors (Fisher and Torbert 1991; Prinsloo 2012; Rooke and Torbert 1998, 2005). These stages are often described as the center-of-gravity, central tendency, or chief action logic that shape what individuals tend to be aware of (Cacioppe and Edwards 2005; Cook-Greuter 2004; Torbert and Livne-Tarandach 2009). For most individuals, the stage of consciousness or ego development tends to stabilize in early adulthood to form a coherent and relatively stable meaning system characterized by specific motivations, cognitive aspects, values, and capacity to deal with complexity (Cook-Greuter 2000, 2004; Drath et al. 2008; Loevinger et al. 1970; Manners and Durkin 2000; Pfaffenberger et al. 2011). According to the empirical studies in this area (e.g., Baron and Cayer 2011; Boiral et al. 2014; Cook-Greuter 2004; Joiner and Josephs 2006; Rooke and Torbert 2005), more than 80 % of the adult population is characterized by conventional stages of consciousness that revolve around three main types: diplomats, experts, and achievers. Diplomats are generally associated with conflict-avoidance, the search for social approval, and a high-dependency on group norms. Experts are less dependent on these norms and more focused

[1] For example, various studies have analyzed the relationships between stages of moral development and stages of consciousness or ego development. For a synthesis of these studies, see for example Manners and Durkin (2001) and Snarey et al. (1983).

on rationality and personal expertise. Achievers are generally driven by the search for efficiency and group performance. Overall, conventional stages are characterized by their search for conformity with social pressures, norms, and commonly accepted moral standards. Conversely, post-conventional stages, which represent less than 20 % of the adult population, are associated with an increased capacity to improve existing rules, manage complex issues, and make personal commitments or choices based on self-selected principles rather than established norms (Cook-Greuter 2000, 2004; Joiner and Josephs 2006; Pfaffenberger et al. 2011; Rooke and Torbert 2005). The two most common post-conventional stages are first individualists, characterized by their ability to find creative solutions and to step back from existing rules, followed by strategists, who tend to be more concerned with long-range, collective, and altruistic issues.

In most managerial research based on the measurement of stages of consciousness, managers at post-conventional stages have been found to have higher capacities than their conventional counterparts, notably in terms of change management, collaborations with various stakeholders, improvement of group performance, and commitment to collective goals (e.g., Baron and Cayer 2011; Joiner and Josephs 2006; Rooke and Torbert 2005). A few studies have also analyzed the implications of the stage of consciousness on environmental management. Some authors (van Marrewijk 2003; van Marrewijk and Hardjono 2003) have analyzed the value systems embedded in different stages and their implications for corporate social responsibility. Because managers at post-conventional stages are characterized by greater concern for systemic, long-range, and inclusive issues, they are assumed to be more committed to environmental protection, which transcends organizational boundaries. In the same vein, Rogers (2012) has analyzed how stages of consciousness can translate into different ‘‘ecological selves’’ marked by specific attitudes and commitments to environmental issues. Boiral (2009) have also proposed a comprehensive model of environmental leadership based on Rooke and Torbert’s (2005) typology that describes the action logics of managers depending on their stage of consciousness. In a recent case study of 15 industrial SMEs, Boiral et al. (2014) have empirically shown the relevance of this model through various examples and quotes from SME managers. According to this study, most sustainable organizations are run by managers at post-conventional stages. Finally, in his in-depth study of 13 managers, Brown (2011, 2012) analyzed the implications of post-conventional stages on sustainability initiatives and complex change management. This study sheds further light on the differences between advanced stages of consciousness and their implications for sustainability leadership. Generally speaking, the literature on the effects of stages of consciousness on environmental management remains theoretical. The few recent empirical studies in this area (Boiral et al. 2014; Brown 2012) are based on a limited sample of managers or focused on a few stages of development that may not be representative of the array of managers’ action logics. Moreover, the relationship between OCBEs and stages of consciousness has not been empirically investigated. The analysis of this relationship would shed further light on the possible intrinsic and psychological drivers of OCBEs. It would also show to what extent stages of consciousness might be translated into specific pro-environmental behaviors.

Hypothesis Development

Managers’ Stages of Consciousness and OCBEs

OCBEs, just like the generic concept of OCBs, can be based on various types of behaviors on which stages of consciousness can have different effects. According to the measurement and validation scale developed by Boiral and Paillé (2012), three main types of OCBEs can be distinguished: eco-initiatives, eco-helping, and eco-civic engagement.

First, eco-initiatives are based on non-prescribed pro-environmental actions in the workplace and suggestions aimed at improving environmental practices or performance: recycling paper, the implementation of an informal carpooling program, suggestions for pollution prevention, or initiatives to reduce greenhouse-gas emissions from a specific process, among other examples. Eco-initiatives tend to mirror the more general concept of individual initiatives in the OCB literature (Smith and O'Sullivan 2012; Temminck et al. 2015). Because these voluntary behaviors extend beyond normal job duties, they are, a priori, less likely to be determined by the adaptation to external pressures and conformity to normative systems that characterize conventional stages of consciousness. Rather, eco-initiatives imply more autonomous and self-determined concerns for collective welfare, which is consistent with post-conventional stages of consciousness (e.g., Brown 2012; Cook-Greuter 2004; Drath et al. 2008; Prinsloo 2012). As a result, one can assume that these stages tend to encourage eco-initiatives, which, in aggregate, contribute to collective goals such as the preservation of ecosystems and the welfare of future generations. Although this assumption has not been measured and validated, it is consistent with the theoretical and empirical literature on the relationships between consciousness development and environmental leadership (Boiral 2009; Boiral et al. 2014; Rogers 2012; van Marrewijk 2003; van Marrewijk and Hardjono 2003). Moreover, higher stages of consciousness in managers are generally associated with more truthfulness and consistency between the values exhibited and managers' actual commitment (Joiner and Josephs 2006; Rooke and Torbert 2005). This consistency should encourage eco-initiatives based on concrete individual behaviors rather than general and conventional discourse on environmental conservation. Therefore, we hypothesized the following:

H1a The higher a manager's stage of consciousness, the greater the manager's engagement in eco-initiatives.

Second, eco-helping is based on voluntary assistance to employees with the integration of environmental concerns: promotion of team collaboration to solve complex environmental problems, sharing environmental information with new recruits, and supporting colleagues involved in a pollution prevention program. Generally speaking, helping and altruism are some of the main aspects of OCBs (Organ et al. 2006) and can also apply to environmental issues (Boiral 2009; Smith and O'Sullivan 2012). Dialog, collaboration, and mutual assistance among employees are indeed necessary to share the knowledge required to address environmental issues, which often presuppose a cross-disciplinary and concerted approach (Boiral 2002, 2009; Paillé et al. 2015; Ramus and Killmer 2007). Such an approach is also in line with the capabilities and worldviews associated with higher stages of consciousness (Brown 2011, 2012; Boiral et al. 2014; Cacioppe and Edwards 2005). One of the main capabilities highlighted in the developmental psychology literature is the ability of managers at post-conventional stages to collaboratively manage complex issues, handle different viewpoints, and develop more altruistic concerns (Baron and Cayer 2011; Boiral et al. 2014; Brown 2011, 2012; Joiner and Josephs 2006; Rooke and Torbert 2005). These abilities facilitate collaboration, helping, and the exchange of ideas between employees. Therefore, we hypothesized the following:

H1b The higher a manager's stage of consciousness, the greater the manager's engagement in eco-helping.

Third, eco-civic engagement is based on voluntary participation in the organization's programs and activities in environmental protection, including involvement in the implementation of an environmental management system, participation in a green committee, or representation of the company at a conference on climate change. Eco-civic engagement reflects, in the arena of environmental behavior, the more general concepts from the OCB literature of organizational loyalty and compliance (Boiral 2009). Although such organizational loyalty and compliance may appear to be a discretionary and extra-role behavior for employees, managers' participation in the organizations' programs and activities seems to be part of their conventional role or what is usually expected from them. From this perspective, managers' eco-civic engagement—even if it remains voluntary, not rewarded, and informal—tends to obey social expectations and conventions to a greater extent than the other forms of OCBEs (eco-initiatives and eco-helping), which appear to be less embedded in the traditional role of managers. Moreover, unlike eco-initiatives and eco-helping, eco-civic engagement implies that environmental programs and activities already exist. As a result, this engagement tends to comply with organizational activities and external expectations. This compliance rationale within existing conventions, rules, and expectations is clearly in line with the capabilities, worldviews, and values acquired in conventional stages of consciousness (Boiral et al. 2014; Cook-Greuter 2004; Drath et al. 2008; Prinsloo 2012). Consequently, managers' eco-civic engagement should not be significantly influenced by post-conventional stages, which basically include and transcend the capabilities acquired in conventional stages (Cook-Greuter 2000, 2004). Therefore, we hypothesized the following:

H1c A manager's stage of consciousness is not related to the manager's eco-civic engagement.

Managers' Personal Environmental Beliefs and OCBEs

Stages of consciousness are not the only intrinsic and extra-organizational drivers of OCBEs. The literature on general OCBs has consistently shown the role of personal values in the development of discretionary and non-rewarded behaviors (e.g., Baker et al. 2006; Organ et al. 2006; van Dyne et al. 1994). Generally speaking, OCBs and ethical values appear to be closely linked. The same remark applies to pro-environmental behaviors from managers. First, the literature on environmental leadership has highlighted the driving role of ecocentric values and personal moral norms (Boiral 2009; Boiral et al. 2014; Lülfs and Hahn 2013; Papagiannakis and Lioukas 2012). For example, the New Environmental Paradigm (NEP) scale, which is based on a set of statements regarding various ecological issues (e.g., limits of the earth's resources to sustain current economic development, rights of plants and animals, overpopulation), has been used in various studies on environmental management and leadership (e.g., Andersson et al. 2005; Egri and Herman 2000). Recent research has also hypothesized that environmental values represent one of the main predictors of OCBEs (Boiral 2009; Daily et al. 2009; Lülfs and Hahn 2013; Ramus and Killmer 2007). This relationship has been validated by a few empirical studies (Boiral et al. 2015; Lamm et al. 2013; Raineri and Paillé 2015; Temminck et al. 2015), although the association is generally not strong. Nevertheless, the influence of personal environmental beliefs on different facets of OCBEs has not been fully investigated. Because the three main types of

OCBEs are based on discretionary behaviors, one can assume that they are all, to some extent, positively related to personal values on the environment. Therefore, consistent with the literature in this area, we formulated the following three hypotheses:

H2a The stronger a manager's personal environmental beliefs, the greater the manager's engagement in eco-initiatives.

H2b The stronger a manager's personal environmental beliefs, the greater the manager's engagement in eco-helping.

H2c The stronger a manager's personal environmental beliefs, the greater the manager's eco-civic engagement.

Further, personal environmental beliefs may also be related to stages of consciousness. First, environmental beliefs are generally embedded in a systemic, long-term, collective worldview commensurate with the emergence of more global, non-egocentric, and inclusive perspectives associated with higher stages of consciousness (Boiral 2009; Boiral et al. 2014; Brown 2012; van Marrewijk 2003; van Marrewijk and Hardjono 2003). A few studies have highlighted the relationships between ecocentric values and certain developmental psychology approaches, notably Kohlberg's model of moral reasoning (Hay 2010; Karpiak and Baril 2008). Second, managers at post-conventional stages tend to be driven by more holistic, visionary, and value-based goals than their conventional counterparts (Joiner and Josephs 2006; Rooke and Torbert 2005). In this perspective, pro-environmental beliefs should be related to stages of consciousness and increase the effects of the manager's level of consciousness on eco-initiatives and eco-helping. Based on these observations, we formulated the following hypothesis shown in Fig. 1:

H3 A manager's stage of consciousness is more strongly related to engaging in eco-initiatives and eco-helping when the manager has stronger personal environmental beliefs.

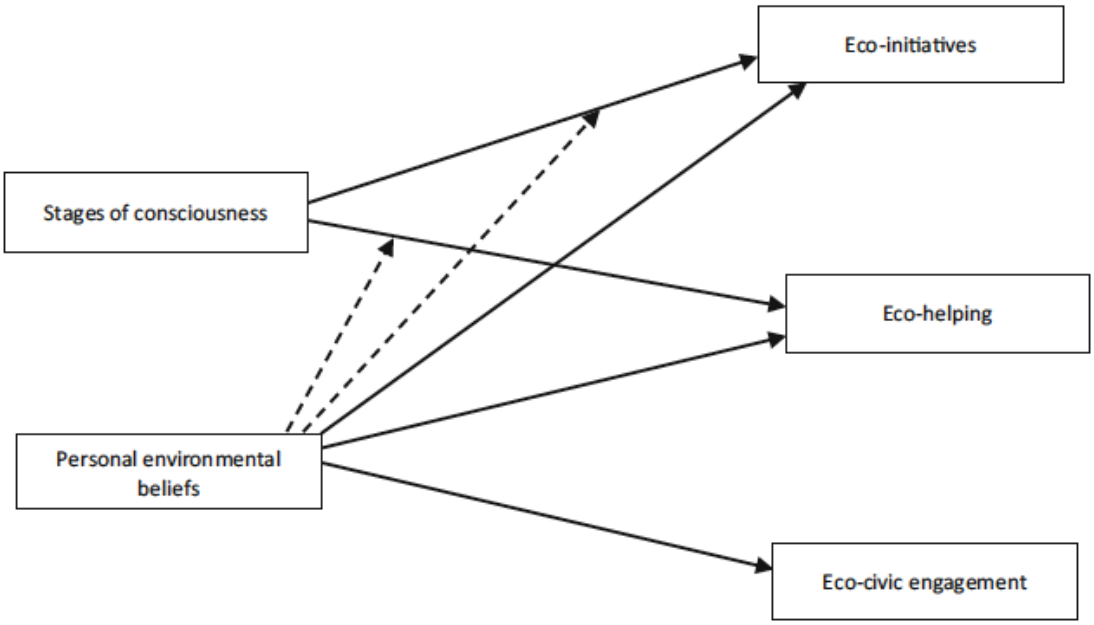

Fig. 1 Research Model. *Note* All relationships in the model are hypothesized to be positive. *Arrows* direct relationship, *dotted arrows* indirect relationship (moderation)

Method

Sample and Procedure

We targeted service company managers enrolled in a 12-month professional development program at a large Canadian university. The program was devoted to organizational leadership in the service industry and did not specifically cover topics related to environmental leadership, thus reducing social desirability bias. To mitigate other potential problems of common method variance (e.g., consistency motif, implicit theories), surveys assuring respondents of their anonymity were administered in two steps: at the beginning of the program (Time 1) and after a four-month period (Time 2). The first survey assessed managers' stages of consciousness using the Leader Development Profile (LDP); the second survey assessed managers' pro-environmental beliefs (NEP) and behaviors (OCBEs).

The training program was sponsored by the managers' employing organization and attendance was mandatory. We used this opportunity to survey five cohorts, each comprising between 25 and 30 managers, between the year 2007 and the year 2012. The managers who started the program (N = 138) agreed to fill in the questionnaire at both measuring times (100 % response rate). Most of them were female (71.7 %), occupied high or top management positions (70.3 %), and worked in large organizations with 500 or more employees (51.4 %). The characteristics of the sample can be found in Table 1.

Measures

Personal Environmental Beliefs

Following Andersson et al. (2005), ecological worldviews were assessed through the five items of the New Ecological Paradigm scale (Dunlap et al. 1992) used by Stern et al. (1999). Sample items included ''the balance of nature is strong enough to cope with the impacts of modern industrial nations'' (as a reverse item) and ''humans are severely abusing the environment.'' Each item was rated on a 5-point scale ranging from 1 = strongly disagree to 5 = strongly agree. Cronbach's alpha was acceptable (a = .72).

Stages of Consciousness

Stages of consciousness were assessed using the LDP questionnaire developed by Cook-Greuter (1999, 2004) and Torbert (Fisher and Torbert 1991; Rooke and Torbert 2005). This questionnaire was chosen because of its extensive use in research and its validation through several thousand tests (e.g., Boiral et al. 2014; Cook-Greuter 2004; Cook-Greuter and Soulen 2007; Torbert and Livne-Tarandach 2009). The LDP is based on the Washington University Sentence Completion Test (WUSCT), which has been widely used in the literature since the 70s, especially in the field of developmental personality assessment (Loevinger et al. 1970; Manners and Durkin 2001; McCauley et al. 2006; Pfaffenberger et al. 2011). The WUSCT test was later revised and improved, notably by Cook-Greuter (1999, 2004). The LDP test is often considered to be the most reliable and studied test of stages of consciousness available (Cook-Greuter 2004, 2011; Pfaffenberger 2011; Torbert and Livne-Tarandach 2009)[2]. It is based on 36 sentence-completion items. Respondents are asked to complete the sentences of the LDP test in less than 45 min. Those sentences cover various issues such as work, education, ethics, and interpersonal relationships. For example, one sentence of the LDP questionnaire to be completed is ''When people are helpless…'' The qualitative responses to these 36 items are first analyzed through an analytical framework based on extensive manuals describing the relationships between the type of responses obtained and the main stages of consciousness. The scores of each response are then aggregated to determine a respondent's center-of-gravity in terms of stage of consciousness. The analysis of the LDP test and determination of the respondents' stages of consciousness were conducted independently by Cook-Greuter and associates, who have extensive experience in this area (Cook-Greuter 2004, 2011; Cook-Greuter and Soulen 2007; Torbert and Livne-Tarandach 2009). In order to avoid possible bias, the objective of the study was not communicated to the certified raters analyzing the LDP questionnaire. The distribution of managers by stage of consciousness is presented in Table 1.

OCBEs

The 10-item scale developed by Boiral and Paillé (2012) was used to measure organizational citizenship behaviors towards the environment, which are comprised of three distinct dimensions: eco-initiatives, eco-civic engagement, and eco-helping. The statements developed by Boiral and Paillé (2012) were chosen for this study because they are relatively general and unspecific and can therefore apply to various ''organizations, activity sectors, occupations or circumstances'' (p. 435). Indeed, the more specific the behaviors, the less they can be generalized to different types of organizations, industries, and occupational activities. Three statements assessed eco-initiatives

[2] For more information on this test, see also http://www.cook-greuter.com/ (Retrieved October 2015).

(e.g., ‘‘I make suggestions about ways to protect the environment more effectively’’), three statements assessed eco-helping (e.g., ‘‘I encourage my colleagues to adopt more environmentally conscious behaviors’’) and four statements assessed eco-civic engagement (e.g., ‘‘I volunteer for projects or activities that address environmental issues in my company’’). Scale anchors ranged from 1 = strongly disagree to 5 = strongly agree. The reliability coefficients for the three measures were acceptable (a = .67, a = .83, and a = .83, respectively).

Table 1 Characteristics of sample ($N = 138$)

	(%)
Gender	
Female	71.7
Male	28.3
Level of education	
Undergraduate	6.5
Graduate	50.7
Postgraduate	42.8
Job level	
Lower management	10.1
Middle management	19.6
Higher management	55.8
Top management	14.5
Organization size	
10 employees or less	1.4
11–50 employees	2.2
51–250 employees	11.6
251–500 employees	33.3
Over 500 employees	51.4
Stage of consciousness development	
Stage 5: diplomat	1.4
Stage 6: expert	21.0
Stage 7: achiever	50.0
Total conventional stages	72.4
Stage 8: individualist	25.4
Stage 9: strategist	2.2
Total post-conventional stages	27.6

Control Variables

Previous research suggests potential associations between demographic characteristics and pro-environmental behaviors in the workplace (Andersson and Bateman 2000, Lamm et al. 2013). As such, we controlled for gender (1 = female, 2 = male), level of education (1 = undergraduate, 2 = graduate, 3 = postgraduate), job level (1 = lower management, 2 = middle management, 3 = higher management, 4 = top management), and organization size (1 = 10 employees or less, 2 = 11–50 employees, 3 = 51–250 employees, 4 = 251–500 employees, 5 = over 500 employees).

Common Method Variance (CMV)

To minimize potential CMV bias, two different strategies were employed. First, the data were collected at different points in time (Podsakoff et al. 2003; Chang et al. 2010). The LDP was administered at the beginning of the program and the questionnaire on environmental beliefs and behaviors was filled in after a four-month period. Second, respondents were assured of their anonymity and informed that there were no right or wrong answers (Podsakoff et al. 2003; Chang et al. 2010).

Descriptive statistics are presented in Table 2.

Results

The hypotheses were tested using hierarchical regression analysis. To rule out multicollinearity concerns, we computed the variance inflation factor score (VIF) between the predictive variables. The VIF was equal to 1.02, which is well below the 10.0 standard (Hair et al. 2010).

Regression results are provided in Table 3. Hypothesis 1 proposed that managers' stages of consciousness would have positive relationships to (a) eco-initiatives and (b) eco-helping but no relationship to (c) eco-civic engagement. The results supported this hypothesis. Managers' stages of consciousness were only related to eco-initiatives and eco-helping. Further, Hypothesis 2 predicted that personal environmental beliefs as assessed by the NEP would be positively related to (a) eco-initiatives, (b) eco-helping, and (c) eco-civic engagement. The results indicate that the NEP and eco-initiatives were not related, thereby rejecting Hypothesis 2a. However, the NEP was significantly and positively related to eco-helping and eco-civic engagement, thereby supporting Hypothesis 2b and Hypothesis 2c.

Hypothesis 3 proposed that stages of consciousness would be more strongly related to both eco-initiatives and eco-helping when managers have stronger environmental beliefs. However, the interaction between stages of consciousness and personal environmental beliefs was neither significantly related to eco-initiatives nor to eco-helping, thereby rejecting Hypothesis 3.

Table 2 Summary statistics and zero-order correlations ($N = 138$)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Gender (Female = 1, Male = 2)	1.28	.45	–								
2. Level of education	2.36	.60	.16	–							
3. Job level	2.75	.83	.02	−.02	–						
4. Organization size	4.31	.87	.05	.09	−.08	–					
5. Consciousness development	7.06	.78	.12	.08	.24**	.17	–				
6. Environmental beliefs	3.79	.55	.00	.18*	.09	−.03	.15	(.72)			
7. Eco-initiatives	3.69	.67	.01	−.13	.16	−.35***	.19*	.14	(.67)		
8. Eco-helping	3.22	.88	.00	.06	.27**	−.24**	.20*	.22*	.70***	(.83)	
9. Eco-civic engagement	3.32	.91	.02	−.04	.32***	−.10	.19*	.22**	.59***	.74***	(.83)

Note Cronbach's alphas appear in parentheses on the diagonal for multiple-item measures

* $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

The main objective of this study was to analyze the intrinsic determinants of OCBEs from a consciousness perspective. More specifically, this study focused on the role of stages of consciousness and personal environmental beliefs (NEP) on managers' OCBEs. The results of the study confirmed that managers' stages of consciousness affect pro-environmental behaviors in the workplace, notably eco-initiatives and eco-helping. This result is in line with the action logics of environmental leadership, which assumes that higher stages of consciousness tend to increase managers' commitment to sustainability (Boiral 2009; Boiral et al. 2014; Brown 2011, 2012; Rogers 2012; van Marrewijk 2003; van Marrewijk and Hardjono 2003). This relationship can be explained by the capabilities, worldviews, and behaviors associated with managers at post-conventional stages: the development of more altruistic and self-determined concerns that transcend the reward and punishment systems, the ability to collaborate with others and handle different viewpoints, the promotion of a more proactive and participative approach, and the leadership to address complex issues of common interest (Baron and Cayer 2011; Joiner and Josephs 2006; Rooke and Torbert 1998, 2005; Snarey et al. 1983). For these managers, OCBEs can appear to be tools to turn their personal concerns for larger global and collective issues into concrete actions inside the workplace.

Table 3 Multiple regressions of hypothesized relationships ($N = 138$)

Variable	Eco-initiatives			Eco-helping			Eco-civic engagement	
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2
Control								
Gender	.07	.04	.05	−.02	−.04	−.04	.06	.05
Level of education	−.12	−.16*	−.15*	.13	.08	.08	−.04	−.11
Job level	.11	.05	.05	.27**	.21**	.21*	.34***	.29***
Organization size	−.25***	−.28***	−.29***	−.23**	−.26**	−.26**	−.08	−.09
Predictor								
Consciousness development		.19**	.19**		.19*	.19*		.13
Environmental beliefs		.14	.13		.25*	.24*		.31*
Moderator								
Consciousness Development × environmental beliefs			−.03			−.02		
ΔR^2		.06**	.00		.06**	.00		.05**
R^2	.15	.21	.22	.13	.19	.19	.11	.16
Adjusted R^2	.12	.18	.17	.10	.15	.14	.08	.12
F	5.89***	5.94***	5.09***	4.94***	4.96***	4.23***	4.06**	4.19***

Note Standardized beta coefficients are reported. Statistical tests are based on one-tailed tests

* $p < .05$; ** $p < .01$; *** $p < .001$

Nevertheless, the role of NEP appears to be less prominent than expected. Although NEP is positively related to eco-helping and eco-civic engagement, it is not significantly related to eco-initiatives. Moreover, our study finds that NEP does not strengthen the relationship between managers' stages of consciousness and OCBEs. Although this finding questions the positive role of environmental concerns on OCBEs that has been advanced in conceptual articles (Boiral 2009; Daily et al. 2009; Lülfs and Hahn 2013; Ramus and Killmer 2007), it is somehow consistent with recent empirical research that reports mixed results on NEP. Indeed, while some studies have

found that workplace pro-environmental behaviors were directly influenced by environmental beliefs (e.g., Lamm et al. 2013; Temminck et al. 2015), others have found that they are not (e.g., Andersson et al. 2005; Chou 2014). This may be explained by the NEP measurement scale and its underlying assumptions. Since its development in the late 70s, the NEP has been used in various environmental studies, as shown in the meta-analysis conducted by Hawcroft and Milfont (2010). Nevertheless, environmental values have become increasingly widespread in society over the last 30 years. As a result, certain items expected to measure personal beliefs for the environment may appear more common at present than they were decades ago due to increasing media coverage of ecological issues and the many educational programs developed in this area. For example, the fragility of nature's balance and possibility of environmental crisis, which are covered by the NEP scale, are now often considered common knowledge and are reflected by social conventions, as shown by the evolution of responses in the NEP scale over time (Dunlap et al. 2000). People may develop pro-environmental worldviews with an affiliative logic regardless of personal involvement (Raineri and Paillé 2015), such that certain ecocentric values are shared by conventional and non-conventional managers alike, without necessarily translating into action such as eco-initiatives.

Contributions

This paper contributes to the literature in several ways. First, the paper contributes to the literature on OCBEs by showing the role of intrinsic drivers such as individual's stages of consciousness. Most research on OCBE determinants has focused on social exchange processes and human resource management variables (Cantor et al. 2012; Lamm et al. 2013, 2015; Paillé et al. 2013, 2015; Paillé and Raineri 2015; Temminck et al. 2015). By focusing on the role of stages of consciousness, this study begins an investigation of the motivations underlying OCBEs related to the personal meaning systems, worldviews and capabilities of managers. Contrary to most organizational and extrinsic determinants explored in the literature, stages of consciousness do not depend on organizational context but are rooted in an individual's history, experiences, and specific frames of reference (Baron and Cayer 2011; Cook-Greuter 2000, 2004; Manners and Durkin 2000, 2001; Pfaffenberger et al. 2011). The results of the study therefore imply that eco-initiatives and eco-helping cannot be determined entirely by the organization because they depend, in part, on personal aspects that are shaped over time outside the working environment.

Second, the study contributes to the consciousness development theory of corporate greening. Most studies in this area have remained theoretical (Boiral 2009; Rogers 2012; van Marrewijk 2003; van Marrewijk and Hardjono 2003) or based on qualitative methods with limited samples (Boiral et al. 2014; Brown 2012). Although these studies have contributed to our understanding of environmental leadership, the relationships between stages of consciousness and specific environmental behaviors have not been demonstrated. One of the main obstacles is the complex administration of the LDP questionnaire, which requires that it be completed independently from other questionnaires. In addition, the qualitative nature of this questionnaire, which is based on open questions, means that it must be cautiously interpreted by qualified experts with specific training. The 138 LDP questionnaires used in our study, examined in relation to pro-environmental beliefs and behaviors, provide a reasonable basis to further explore the complex relationships between consciousness development and environmental decision-making. The main findings of the present study complement the qualitative studies of Boiral et al. (N = 15) and

Brown (N = 13) by showing that higher stages of consciousness tend to translate into more eco-initiatives and eco-helping in the workplace. As expected, eco-civic engagement, embedded in more conventional aspects of managers' participation in organizational programs and activities, is not influenced by stages of consciousness. Generally speaking, the study contributes to bridge the gap between the OCBE literature, which is based on concrete and observable behaviors, and the theory of stages of consciousness, which is focused on less observable and underlying worldviews, meaning systems, and capabilities. Despite their complementarity and usefulness to understand leadership and organizational behavior, those two streams of research have developed independently.

The study has also implications for organizations. Contrary to the mainstream literature on OCBEs, which is focused on employees, this study sheds new light on managers' voluntary behaviors for the environment. Because they are based on individual behaviors, the OCBEs performed by the managers of an organization do not necessarily have, in themselves, a substantial and direct impact on the environmental performance of that organization. Nevertheless, these OCBEs can be an effective tool for leading by example and may have an emulative effect throughout the organization (Boiral et al. 2014, 2015). It is reasonable to assume that the exemplary nature of managers' OCBEs encourages employee OCBEs and contributes to corporate greening. This emulation could explain, in part, the relationships between stages of consciousness and corporate greening (Boiral 2009; Boiral et al. 2014; Rogers 2012; van Marrewijk 2003; van Marrewijk and Hardjono 2003). It also raises questions about how to promote more conscious and greener leaders. According to Baron and Cayer (2011), organizations could foster post-conventional consciousness in leaders through training programs and specific practices such as mindfulness meditation and Bohm dialogue. Nevertheless, the emergence of post-conventional consciousness only concerns a minority of managers and depends on complex aspects and events—such as life experiences, education, life paths or adaptation to changing contingencies—leading to the reorganization of the meaning-making system of individuals (Baron and Cayer 2011; Cook-Greuter and Soulen 2007; Manners and Dukin 2001). As summarized by Baron and Cayer (2011) ''consciousness development is a difficult and often painful process that is rarely deliberate, but more often brought about by experiencing a gap between the complexity of one's meaning structures and the complexity of the challenges one is facing'' (p. 348). Moreover, although the stages of consciousness are not static, they tend to stabilize in early adulthood (Manners and Durkin 2000; Pfaffenberger 2005; Pfaffenberger et al. 2011). As a result, post-conventional stages seem difficult to promote through programs implemented by organizations. Overall, the empirical literature in this area remains underdeveloped and, because the vast majority of the adult population share conventional stages of consciousness (Cook-Greuter 2004), most organizations will remain ruled by leaders with conventional worldviews.

Limitations and Avenues for Future Research

The limitations of this study can help identify directions for future research on this topic. First, this study has essentially focused on the implications of stages of consciousness and NEP on OCBEs. Although the importance of these behaviors for improving environmental performance has been validated in the literature (Boiral et al. 2015; Paillé et al. 2014), it was not investigated in this study. Likewise, the impact of OCBEs on other variables related to environmental

management—such as the implementation of an environmental management system, the improvement of stakeholder relationships, or the disclosure of information on corporate sustainability—have not been investigated. How employees emulate managers' OBCEs and the possible impact of this emulation on the successful implementation of various environmental practices could also be investigated. Second, this study depended on a specific professional development program on leadership implemented in the Canadian service industry. As a result, the sample was not representative of the whole population, notably in terms of activity sector. Studies on the influence of stages of consciousness on corporate greening and OCBEs should be extended to include different sectors and regions. Third, our study does not investigate the effects of consciousness development over time and its relationships with OCBEs. Although the stages of consciousness are quite stable, future studies could be based on a longitudinal approach to shed more light on the possible relationships between long-term changes in managers' meaning-making systems and their environmental commitment. Such studies could rely on both quantitative and qualitative methods to further investigate the intrinsic drivers, personal motivations, values, and stages of consciousness associated with substantial changes in managers' environmental behaviors. The role of the managers' stages of moral development (Hannah et al. 2011; Prinsloo 2012; Snarey et al. 1983; Trevino 1992) on corporate greening could also be investigated. Although stages of consciousness and the moral development of individuals are interdependent, their scope and measurement scales differ (Manners and Durkin 2001; Snarey et al. 1983). Longitudinal studies could further elucidate the long-term effects of stages of consciousness and moral development on managers' environmental commitment, including in terms of OCBEs. Fourth, future research could delve deeper into the implications of different stages of consciousness on environmental management. For example, one could investigate how these stages might influence management-specific issues such as environmental risks and crises. More generally, the determinants of post-conventional stages and the extent to which these stages can be stimulated within organizations have been overlooked in the literature and need to be better understood. Nevertheless, information on the stages of consciousness is not easily accessible and quite costly to obtain. Moreover, this information cannot be collected through quantitative questionnaires and requires external expertise. As a result, the implementation of a comprehensive study based on more diversified variables and a larger sample is very difficult to be conducted, which explains the lack of empirical research in this area.

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