

A Cognitive Elaboration Model of Sustainability Decision Making: Investigating Financial Managers' Orientation Toward Environmental Issues

Edina Eberhardt-Toth · David M. Wasieleski

Received: 31 May 2012 / Accepted: 5 April 2013 / Published online: 23 May 2013
© Springer Science+Business Media Dordrecht 2013

Abstract This empirical paper examines individual-level cognitive factors associated with developing an orientation to sustainable development issues among a population of business practitioners from France. Across two studies, we survey 180 financial managers and 83 finance students, as well as 144 managers from other business disciplines and 117 non-finance business students. We consider ability and motivation variables integrated and adapted into a cognitive elaboration model for sustainable decision making. Specifically, we examine the degree of influence of two factors on the ethical sensitivity to sustainability: the moral maturity of the individual, and the perceived moral intensity of a sustainability issue. Our investigation offers insights into how financial managers perceive the importance of sustainability for corporate strategy.

Keywords Chief financial officers · Cognitive moral development · Corporate environmental responsibility ·

Defining issues test 2 · Ethical decision making · Person–situation interactionist perspective

List of Abbreviations

ANOVA	Analysis of variance
CEM	Cognitive elaboration model
CFO	Chief financial officer
CIMA	Chartered institute of management accountants
CSR	Corporate social responsibility
DIT	Defining issues test
EA	Environmental attitudes
EMBA	Executive Master of Business Administration
ESOMAR	European Society for Opinion and Marketing Research
MBA	Master of Business Administration
NEP	New environmental paradigm
NRE	Nouvelles Régulations Economiques (New economical regulations)
PRESOR	Perceived role of ethics and social responsibility
PSI	Person–situation interactionist
UNEP	United Nations Environment Programme
WBCSD	World Business Council for Sustainable Development

The authors are grateful for the French member of the International Association of Financial Executives Institutes, the DFCG association, for their contribution in answering the research survey.

E. Eberhardt-Toth
CEREFIGE-ICN Business School, Nancy-Metz, 13 Rue Michel Ney, 54000 Nancy, France
e-mail: edina.eberhardt-toth@icn-groupe.fr

D. M. Wasieleski (✉)
Palumbo-Donahue Schools of Business, Duquesne University,
600 Forbes Avenue, 918 Rockwell Hall, Pittsburgh,
PA 15219, USA
e-mail: wasieleski@duq.edu

D. M. Wasieleski
CEREFIGE-ICN Business School, Nancy-Metz, France

Introduction

In 2004, the United Nations Environment Programme (UNEP) in conjunction with the European Society for Opinion and Marketing Research (ESOMAR) commissioned a study to examine the reasons behind the general lack of sustainable behavior among business managers despite decades of promotional campaigns designed to

raise the public's awareness of the importance of addressing sustainability issues. The authors used sustainable programs as a proxy for demonstrating the level of social stewardship of the company. They found that sustainability generally ranks quite low in terms of all the intangible assets for corporate strategy. One of the major conclusions of the study is that members of the business community (managers) need to be motivated to change their behavior to include actions that support the protection of public resources like the environment (United Nations Environment Programme 2004).

We use the commonly accepted Brundtland Commission (1987) definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 24). Oakley (2008) claim that the level of changed behavior among individuals regarding sustainable initiatives is "worryingly low" (p. 1). The authors posit that "the fundamental factor underlying our unwillingness to integrate sustainable practices into our everyday lives is one of motivation" and suggest that "intrinsic, self-driven motivations might make a more effective approach" than extrinsic motivations (p. 2). Thus, there seems to be a growing acknowledgement that one challenge for promoting sustainable behavior among people must include a changing mindset about the relevance and importance of resolving sustainability issues.

This paper addresses these recent calls for work on understanding what motivates sustainable behavior by examining individuals' cognitive and intrinsic motivating tendencies. In particular, we examine individual factors that may affect how managers in business *perceive* public goods problems in an effort to more fully understand how to encourage them to make sustainability concerns part of their decision-making process. Our purpose is to raise individual manager's awareness of the importance of adopting sustainable initiatives so they are motivated to integrate sustainable practices into their strategic planning. In effect, we address the problem of business managers "shirking" on their responsibilities to the environment as a stakeholder (Sroufe and Sarkis 2007). We need to elevate individuals' concerns for public goods so that they are motivated to cooperate on initiatives to protect the environment. Before we can motivate managers to include a concern for sustainable issues, we need to first understand what cognitive factors affect how these issues are perceived. We presume that sustainability issues have an ethical component. Thus, our main research question is: *What individual factors may interact to affect managers' ethical sensitivity to sustainability issues?* "Ethical sensitivity is the ability to recognize or perceive ethical content in a problem situation before an ethical decision is made" (Yetmar and Eastman 2000, p. 272). *In particular, we*

examine the question: Does sustainable development matter to financial managers of organizations? In other words, do financial managers perceive sustainability as part of their responsibility when making strategic decisions?

We focus our analysis in this study on the financial managers of organizations. Financial managers have a key role to play in sustainability: "Without the data they own, the analysis they can provide and the discipline they bring to planning, climate change initiatives will struggle to gain either credibility within the organization or rigour to deliver tangible, sustainable results." (CIMA 2010, p. 9). Financial directors are a key element in decision-making. Howell (2006) argues the important role of Chief Financial Officers (CFOs) in the sustainability strategy formulation. Today, the "senior financial executive role has expanded from a narrow 'accounting and control' function to one of financial strategist and business advisor" (p. 20). The CFO position exists at the nexus of a company's information and, consequently, is a key source of advice and counsel to the Chief Executive Officer (p. 25). According to Stilwell (2009), "finance is the best placed function to take the lead on sustainability and manage corporate performance in this area" (p. 27). Pialot (2009) presents a case study of the Accenture consulting firm which highlights the role of financial directors in the integration of sustainable development objectives to the strategy of the companies. The inquiry reveals that in 2009, 55 % of sustainable performance management was realized by the sustainable development directors and 15 % by financial directors. It was predicted that this shift of responsibility to the financial directors will continue.

We agree with the position taken by Freeman and Harris (2009) that business processes need to be seen as another way for individuals to create meaning. Once ethics is viewed as a purely human endeavor, which cannot be separated from business governance strategies or from any discussion involving business and society, then it might be thought of as being "concerned with authenticity and change, power and authority, leadership, imagination and the creation of sustainable value" (p. 691). This holds special relevance for financial managers since they play such a pivotal role in these strategies, whether indirectly or not.

This present paper is broken into two studies. Building on the idea that individual and situational factors interact to produce ethical decision-making behavior, we examine attitude formation toward a sustainability orientation through an adapted cognitive elaboration model. Study 1 examines financial managers' ability to recognize the importance of sustainable development issues. More specifically, we look at how a financial manager's predominant stage of cognitive moral development may relate to strategic preferences in terms of their orientation to sustainable development issues. Study 2 looks at intrinsic motivation of individuals to determine their willingness to

engage in an environmentally responsible act. In addition, in this second phase we examine the perceptions of moral intensity of the issue of environmental protection by financial managers. Through both studies, we claim in this present paper that preferences for sustainable management practices are affected by cognitive perceptions of an issue and by the context of the issue itself. Both sets of factors affect a person's cognitive expenditure which affects the ethical decision-making process toward addressing sustainability issues. We construct a model of the antecedents of sustainability orientation at the individual level of analysis. Conceptual ties across the psychological theories are drawn and implications for practice are proffered.

Sustainability: The Legacy of Business Ethics and Corporate Responsibility

In our study we consider the role of the business world in the sustainable development of our planet in terms of responsibility and performance, particularly the role of financial managers. With knowledge, resources and power, companies can influence positive change toward the ecological sustainability of our planet (Shrivastava 1995). Corporate responsibility includes social impacts, but also environmental ones and stresses more precisely the non-economic responsibilities than the commonly used Corporate social responsibility (CSR) expression. According to a definition by the World Business Council for Sustainable Development, "CSR, in broad summary, is the *ethical* behavior of a company toward society" (WBCSD 1999, p. 6). Sustainable development implies decision based on a triple bottom line view, as defined by Elkington (1998) that involves the consideration of social, environmental, and economic performance of decisions.

Porter and Kramer (2011) claimed that "most companies remain stuck in a 'social responsibility' mind-set in which societal issues are at the periphery, not the core" (p. 64). The authors introduced the concept of "shared value". We think the dialogue should focus on insuring that financial managers' decisions not only include a consideration for economic performance, but also for social and environmental performance. This involves balancing economic and non-economic performance. In other words, what is the proper trade-off for higher social/environmental performance and lower economic performance? Or, can a positive-sum result be achieved? According to Ambec and Lanoie (2009), economic and environmental performance can be complementary for companies, in particular on the long-term for those who can innovate in their production and organizational processes. To achieve this duality, a considerable reorientation in the company leaders' decision-making tendencies is necessary.

Today, firms are pressed to be more socially responsible to their stakeholders (Freeman 1994; Logsdon and Wood 2002; Wood 1991). Socially responsible behavior by the organization is theorized to be in general correlated with corporate financial performance, and thus, long-term survival (Griffin and Mahon 1997). However, this correlation depends on methodological consistencies (Roman et al. 1999). In their meta-analysis, Allouche and Laroche (2005) more recently found 49 positive association cases, 6 negative, 21 not-significant, and 17 mixed. These results suggest that researchers in sustainable enterprise cannot rely on financial incentives alone to encourage responsible behavior. We need to examine other factors including, ethical variables, for maintaining a concern for the environment.

Next, we present the context for our theoretical framework—the person–situation interactionist (PSI) model. To discover what truly motivates an ethical sensitivity to sustainable development issues among financial managers, we identify two levels of influence: individual factors and situational factors.

PSI Perspective

The perspective we take in this present paper is from the PSI Model of ethical decision making (Trevino 1986). This model claims that ethical decision making is explained by the interaction of individual/cognitive and situational/contextual components. The basic four-step ethical decision-making model (awareness, judgment, intent, behavior) is moderated by these components (Rest 1979). For a more comprehensive understanding of a person's willingness to engage in a particular behavior, it is important to examine the interaction effects of multiple factors on a person's rational functioning. The PSI framework acknowledges additional individual-level cognitions as well as situational variables as being important for understanding how a person acts when faced with an ethical dilemma.

Situational factors, according to the PSI, profoundly affect a person's cognitive response to stimuli. The context of the situation at hand affects how an individual will act (Kelley and Elm 2003; Weber and Wasieleski 2001). Haines and Leonard (2007) found that the perceived importance of the ethical issue and its context has an overall effect on behavior. A person's susceptibility to situational components greatly depends on that person's predominant level of moral development (discussed in the next section). Thus, the situation also is not enough to predict how a person behaves in a given scenario. For instance, individuals who tend to follow conventions of society to determine how to act are considered to be the most vulnerable and by consequence, are highly affected by situational factors. So the degree of social agreement

about the morality of an issue and the cultural definitions of acceptable practices will affect the motivation to act. Again, we see the interaction effects suggested by the PSI model. While the situation indeed does influence the intent of an individual to act in an ethical manner, the authors found that it largely depends on the personal characteristics of the individual.

Our present studies examine both individual/cognitive and situational/contextual factors on managers' *sensitivity* to sustainability. Next we develop the basis of our model for sustainability decision making, using an elaboration framework for attitude change.

Cognitive Elaboration Model of Sustainable Decision Making

The PSI Framework provides us with an approach for presenting our model of attitude change toward sustainable development. It is important to underline the fact that person-level characteristics and situational/contextual characteristics *interact* to affect how decisions are made and evaluated. We move now from this overarching perspective of decision making to a more tailored model for understanding what is involved in producing the amount of cognitive expenditure necessary to address sustainability issues. Our interest lies in discovering whether financial managers have the ability and willingness to expend the cognitive effort necessary to address environmental sustainability concerns.

Street et al.'s (2001) cognitive elaboration model (CEM) of ethical decision making integrates research from the attitude change and persuasion literatures to Rest's (1986) ethical decision-making process model. Elaboration refers to a person's level of cognitive exertion toward a target issue's attributes and merits (Petty et al. 1995). The first step of Rest's (1986) model (recognizing a moral issue) is essential to activate the ethical decision making process. Street et al. (2001) assert that to initiate the four-stage decision schema of Rest (1986), a high level of cognitive expenditure is needed, which depends on motivation and ability, each of which possess individual and situational characteristics.

Cognition involves two separate mental systems (Kahneman 2011). System 1 is in charge of automatic processing of information. Individuals have no control over the activation of this system. When faced with a situation, System 1 constructs an immediate interpretation through the activation of heuristics. System 2 deals with effortful mental activities and active processing. "The operations of System 2 are often associated with the subjective experience of agency, choice, and concentration" (Kahneman 2011, p. 21). It can override the automatic metrics for

behavior dictated by System 1 through cognitive expenditure (Frederick and Kahneman 1999). Reasoning through complex dilemmas and the construction of solutions are System 2 cognitive activities. In a sense, for the process to be triggered a certain level of sensitivity to the issue must be achieved. Purposeful cognitive expenditure is required to affect an individual's intent to engage in a moral behavior. The CEM identifies the factors that are expected to affect a person's attitude toward an issue and consequently the effort expended toward addressing the issue (via the ethical decision-making process).

Sustainable Development Orientation

Our present paper examines the possible intervening factors involved in the ethical sensitivity financial managers may feel toward sustainable development issues. In other words, we attempt to discover if certain cognitive and motivational variables relate to a manager's sustainability orientation. Aupperle (1984) created a measure of a person's social responsibility orientation. His instrument assessed the extent to which managers embrace Carroll's (1979) social responsibility categories as part of their job function. Aupperle's instrument has been used across different social contexts to evaluate managers' tendencies toward the economic, legal, ethical, and philanthropic elements of business (e.g., see Smith and Blackburn 1988; Smith et al. 2001). However, no previous study directly focused on an individual's orientation toward ecological sustainable development issues.

Corporate responsibility orientations are fluid and constantly changing. Stakeholder expectations and sensitivity to particular societal issues evolve over time. These "...social orientations have undergone changes in response to newly emerging issues impacting business organizations" (Pinkston and Carroll 1996, p. 201). In terms of corporate strategic decision making, managerial involvement in addressing societal concerns is somewhat discretionary. Past research has examined organizational members' changing perceptions of their responsibilities toward various stakeholders (Brenner and Molander 1977; Godos-Diez et al. 2011; Pinkston and Carroll 1996; Shafer et al. 2007). The studies do not directly address these responsibilities in terms of sustainability. Given today's emphasis on environmental issues in business and public policy arenas, obtaining a greater understanding of key decision-makers' orientation toward sustainability is warranted.

Singhapakdi et al. (1996) claim that the perception of an ethical problem is affected by a person's perceived importance of ethics and social responsibility for the going concern of the organization. Thus, an antecedent of the ethical decision-making process is an individual's attitude toward an issue. This argument is consistent with Street

et al.'s (2001) contention that there are important variables that precede the activation of the ethical decision-making model. Managers must “first perceive ethics and social responsibility to be vital to organizational effectiveness before their behaviors will become more ethical and reflect greater social responsibility” (Singhapakdi et al. 2001, p. 134). In a study measuring managers' perceived concern for ethical issues and their sensitivity toward social responsibility, Shafer et al. (2007) used the perceived role of ethics and social responsibility scale. They concluded that a manager's orientation toward particular stakeholder issues (in terms of ethics and CSR) is likely to be a critical determinant of actual behavior. More recently, Godos-Diez et al. (2011) studied managers' profiles to see if their stakeholder preferences predicted their adopted CSR practices. The authors examined the role of demographic variables as well as managers' perceived role of ethics on CSR practices. They found that the perceived importance of ethics had a mediating effect on social responsibility implementation.

For the formation of our adapted model of cognitive elaboration for sustainability decision-making, we next organize our hypotheses by the category of cognitive expenditure. Consistent with the model, we separate the ability variables and motivation variables (Street et al. 2001), which correspond to the interaction of person and situational factors. Study 1 focuses on an individual's *ability* to have a concern or sensitivity for the target issue.

Study 1: Ability Variables

People differ in how they perceive the occurrence of events and issues (Jones 1991). The ethical decision-making model is affected by cognitive biases (Kahneman 2011; Trevino 1986). Street et al.'s (2001) CEM identifies various possible individual factors contributing to a person's ability to trigger the ethical decision-making process for a target issue. To cover all aspects of their model is beyond the scope of our first empirical project. Thus, for study 1, we now turn our attention to one main cognitive factor in the PSI framework that fits within the ability category. We contend that cognitive moral reasoning could have an effect on financial managers' attitudes toward sustainability issues. Specifically, we examine a relationship between a person's level of cognitive moral development and sustainability orientation.

Cognitive Moral Development

Individuals tend to reason predominantly through moral dilemmas using a particular set of schema depending on

their stage of cognitive development (Trevino 1986). Moral schemas form through the socio-moral experiences that accumulate over time. Cognitively developed schemas fall in line with the three major moral development levels discussed by Kohlberg (1969). The “individualistic” socio-moral perspective schema corresponds to the pre-conventional level of reasoning. Here, the actor only considers personal consequences (positive or negative) of an action. There is room for a sense of enlightened egoism at this level, whereas individuals can seemingly obey rules and laws, or even respect the rights of others, but only for the underlying maxim of personal benefit (Weber and Wasieleski 2001).

The second moral schema is qualitatively more developed and involves maintaining social norms. Individuals employing this conventional-level schema follow the institutions of society to determine what is right and acceptable. Societal conventions are perceived as proper and should be followed to maintain a well-functioning social system. Most managers predominantly reason at this level, which means that they are likely to follow the norms set by their referent group. For example, if the norms of the group emphasize short-term financial gain for the organization, managers who reason at the conventional level will perceive actions upholding this norm to be moral. Thus, these managers are less likely to have longer-term orientations involving a balanced bottom line if their referent group does not support sustainability.

Finally, the most complex schema of the three is the post-conventional type. These individuals think that “moral obligations are to be based on shared ideals, which are reciprocal and are open to debate and tests of logical consistency, and on the experience of the community” (Rest et al. 1999, p. 307). Universal ethical principles commonly held by all members of a global society guide reasoning at this level, and allow for a sophisticated flexibility in solving moral problems. These reasoners decide that current societal laws and norms are not sufficient to determine what is morally desirable. We believe that the challenges associated with sustainable development should be addressed more directly by policymakers. Laws and rules need to be adapted to reflect the needs of the environment. Post-conventional reasoners may be better suited to imagine new ways of functioning that go beyond the existing social codes and mental schemes. Managers at this level are more likely to orient decision making toward sustainability, even in the business world.

It is more likely that post-conventional reasoners with a “beyond-society” socio-moral perspective of the world would take into account universal ethical principles that may include a long-term concern for future generations. Thus, Hypothesis 1 states:

H1 The higher the moral maturity level of an individual, the more likely that individual will be sustainability oriented.

We expect managers who reason predominantly at a principled level would be more sensitive to the ethical aspects of environmental issues than would be managers who reason primarily at a conventional or pre-conventional level.

Financial/Non-financial Populations Hypothesis

Another aspect of our study involves the examination of the possible unique motivation of financial managers compared to non-financial managers in France. Our studies do not focus on cultural differences in cognitive expenditure on sustainability issues. Instead, we focus on the particular job function of our respondents. Little attention has been given to how individuals from a particular discipline (e.g., finance) differ in their moral reasoning from individuals in other disciplines. Thus, our analysis here is largely exploratory. Goolsby and Hunt (1992) examined the moral reasoning of marketers, for instance, but only look within the profession instead of across professions. Weber and Wasieleski (2001) showed significant differences among business practitioners' reasoning across type of work and industry membership. The authors found that of the five industries examined, healthcare professionals tended to have the highest predominant moral reasoning score. Financial managers were grouped together with accounting managers and their moral reasoning scores were not found to be statistically significantly different from the other job functions. They found, however, that job function mattered overall.

The financial services profession is faced with a unique set of challenges. First of all, given the current worldwide financial crisis, the world of finance is under increased scrutiny. Business ethicists are tempted to view financial services management differently than other professions. Since finance professionals potentially play a special role in decision-making, some argue this entitles them to additional oversight attention (Ryan et al. 2010). The finance field is "characterized by a strong conceptual dependence on three notable borrowings from economics: a narrow conception of rationality, a restricted view of the good as wealth maximization and risk aversion, and a methodological commitment to instrumentalism..." (p. 682). Conceptually, these three pillars will crowd out a concern for ethics. A general perception is that the financial services field does not advocate actions that reduce rational short-term wealth maximization when making decisions (Oosterbeek et al. 2004). While we feel this subjective viewpoint is an unfair, overly broad generalization, these arguments suggest that managers within this field may possess different orientations

and reason differently than managers in other fields. Thus, it is possible that there will indeed be a characteristic predominant level of moral reasoning among financial managers. We hypothesize:

H2a Financial managers will have a lower predominant level of moral reasoning than do managers from other business disciplines.

Using similar logic there may be a difference in the type of sustainability orientation between financial managers and non-financial managers. Given the background and type of work of financial managers (explained in the previous section), we expect that they will have a weaker sensitivity toward sustainable development issues than do non-financial managers. Thus, we state:

H2b Financial managers will have a lower orientation toward sustainability issues than do managers from other business disciplines.

Indeed moral reasoning has been found to moderate the different stages of the basic ethical decision-making model (Trevino 1992; Warming-Rasmussen and Windsor 2003; Weber 1996; Weber and Wasieleski 2001). However, even though this construct represents how a person actually thinks about a moral dilemma depending on the stage of reasoning used, "cognitions of right and wrong are not enough to explain or predict ethical decision-making behavior" (Trevino 1986, p. 602). Cognitive moral development represents a critical part of our puzzle for understanding how managers reach a sustainability orientation, but not the only part. In study 2, we examine empirically situational factors which affect a person's motivation. Next, we discuss the major aspects of an environmental situation that may interact to have an effect on ethical decision-making behavior related to sustainable development issues.

Study 2: Motivation Variables

Street et al. (2001) defined motivation "as the willingness to consciously expend [sic] cognitive energy in assessing the merits and attributes of a target object" (p. 8). The elaboration likelihood model literature suggests that people are motivated to think about information related to an issue to varying degrees. Motivation is affected by *both* individual and situational characteristics, which is consistent with Trevino's (1986) PSI model. In our present paper we exclude extrinsic monetary incentives for motivating behavior. Our focus is on cognitive variables. Individuals differ substantially in their willingness to engage in cognitive activities (Cacioppo and Petty 1982). The greater the potential impact of the target issue on the values, work life, etc., to the decision maker, the more motivated s/he is to

thoughtfully examine the relevant information concerning the particular issue (Petty 1995). In our second study we consider two intrinsic motivation variables—one related to the individual, and one related to the situation. We examine sustainable development values and the moral intensity construct, respectively. For the purposes of our current paper, we limit this empirical study to the situational variable.

Moral Intensity

Moral intensity was first introduced and developed by Jones (1991) as a critical force on ethical decision making. Rather than emphasizing characteristics of the decision-maker or the organization to which the individual belongs, it addresses the characteristics of the issue itself. The model encompasses six characteristics of a moral dilemma. These characteristics include the magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect. Moral intensity will increase if any of these components is raised, and it will also decrease if any of them is lowered (Jones 1991). Watley and May (2004) conducted a study on the perceptions of moral intensity and concluded that “if a manager wants to encourage ethical behavior, s/he should provide personal information about the individuals who will be affected” and that “ethical behavior is enhanced when an individual *perceives* that the consequences are serious” (p. 18).

We contend that the perceived moral intensity of the issue itself as determined by the issue dimensions will moderate the activation of cognitive action biases in individuals. Jaffe and Pasternak (2006) examined all six characteristics of moral intensity and found that the moral intensity construct is an actual predictor of social responsibility. Their structural equation model identified magnitude of consequences, proximity and social consensus as having the most substantive effects on individuals’ willingness to be socially responsible. Scholars have also focused on what affects overall perceptions of the moral intensity of a particular issue. Flannery and May (2000) examined how changes in perceived moral intensity affect a person’s intention to act related to environmental-specific issues. A decrease in magnitude of consequences affected how individuals would address an environmental concern. In a similar vein, Jaffe and Pasternak (2006) found that manipulations of perceived moral intensity influences how a person views CSR. The more morally intense a person views a social issue to be, the more likely s/he will *intend* to behave in a socially responsible act.

In our model (see Fig. 1), we treat perceived moral intensity of a sustainability issue as a mediating variable on

the intent to commit to a sustainably responsible act. We contend that individuals who perceive sustainable development issues to be morally intense are more intrinsically motivated to recognize the importance of sustainability for corporate strategy. For this study, we constructed short vignettes, adapted from Flannery and May (2000) from the moral intensity literature in order to examine the moral intensity of sustainability issues in particular. The environmental sustainability issue was framed either as possessing high moral intensity or low moral intensity with regard to a public good. Respondents were asked whether or not they would engage in the sustainable behavior and then to indicate their perceptions of the magnitude of consequences of the issue. We hypothesize that there will be statistically significant differences between respondents who decide to act and those who decide not to act based on the level of the moral intensity of the issue they are being asked to evaluate. Thus, Hypothesis 3 states:

H3 The more morally intense an individual perceives a sustainability issue to be, the greater the likelihood s/he will intend to act in a sustainably responsible manner to address the issue.

Intuitively, we expect individuals who perceive the moral intensity of a sustainability issue to be high will have a higher tendency to be committed to act in a sustainably responsible manner. Since we are dealing with hypothetical issues, we examine moral intensity’s effect on intent to act, rather than actual behavior. Conversely, individuals who do not perceive the moral intensity of a sustainability issue to be high will have a lower tendency to act in a sustainably responsible manner. Thus, individuals can be more likely motivated to engage in a sustainable practice if they perceive the public goods issue to have a high level of moral intensity. (Please note: The Propositions—P1, P2, P3—indicated on Fig. 1 are explained in the “Discussion” section for future research suggestions.)

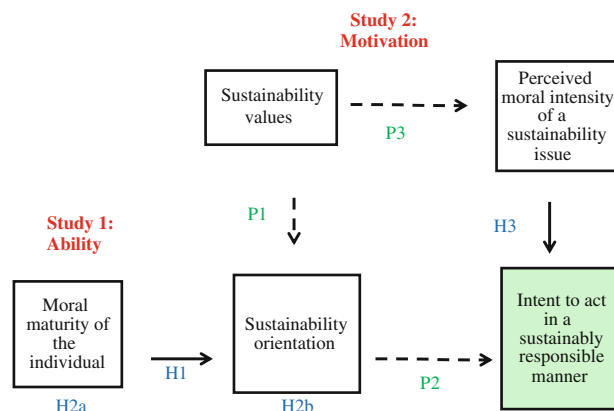


Fig. 1 Cognitive elaboration model of sustainable decision-making

Method: Study 1 (Ability)

To capture the *ability* axis of our CEM, we explore the relationship between cognitive moral development and attitudes toward environmental issues. Data was collected in France through a questionnaire composed of two validated measurement instruments (described below). The data collection was separated into two studies because we were concerned about the instrument fatigue of the respondents. Also, since we used mixed-measures, it made sense to separate the studies by construct.

Sample and Procedure

Our sample of managers consisted of 324 practitioners contacted through two associations in the east of France: the Association of Executive MBAs and Master Degree graduates from a French business school, and a professional association of financial directors and management controllers (some of which were alumni of the business school in eastern France). Each group was separated into two sub-groups—respondents with a financial background and respondents without financial management experience. The questionnaire was distributed online as an exercise to the business practitioner managers. Solicitations for responses to the online questionnaire were sent out via email newsletter subscribed to by members of the association. An e-mail reminder was sent 1 week later to the entire group. The overall response rate was 8 %.

Online survey materials were administered using Sphinx software and maintained through a centralized website. Responses were recorded anonymously and immediately aggregated into an Excel spreadsheet in coded form. Since the sample was taken from a French population, all English materials (except for DIT-2 which was already officially translated into French and validated) were translated from English to French followed by an independent professional back-translation technique to check for consistency.

Table 1 presents the descriptive statistics for study 1.

Measures

Defining Issues Test (DIT)

In the first phase of data collection, participants are asked to complete the DIT-2 instrument. While DIT-2 is not considered a direct substitute for the less practical moral judgment interview (Colby and Kohlberg 1987) it is the most widely validated and used measure of moral judgment (Loviscky et al. 2007). The DIT-2 was used in this study as it produces more reliable results than the original DIT (Rest et al. 1999). The DIT-2 and its predecessor, the original DIT, are psychometric instruments used to measure an

Table 1 Demographics of study 1 respondents

Variables of managers	Financial	Non-financial	Total
Total	180	144	324
Age			
30 or under	44	30	74
31–40	72	66	138
Over 40	64	48	112
Gender			
Female	72	57	129
Male	108	87	195
Position in organization			
Manager of corporation	52	35	87
Manager of subsidiary or region	38	32	70
Manager of SME	26	26	52
Other	64	51	115

individual's stage of moral reasoning (Rest 1986; Rest et al. 1999). The new iteration has demonstrated construct validity and reliability across contexts, and thus, is the most frequently utilized instrument for measuring moral development today. Specifically, the DIT-2 measures an individual's recognition and preference for one of the three moral schemas regarding moral judgments, outlined by Kohlberg.

There are five ethical dilemma scenarios in the DIT-2. Respondents are given a choice of two actions related to the dilemma (and an option indicating, "can't decide"), and then they are presented with a list of 12 issues on which they are asked to rate on how important each one was for making their decision. Following that part, respondents are asked to rank order the four most important issues from the list for making the decision. Ten of the twelve issues directly represent a level of moral reasoning, while the other two are included for reliability purposes.

The sophistication of moral reasoning is addressed by both the P score and the new N2 score. The former score, which came from the first DIT instrument, indicates the percentage of responses associated with principled reasoning schema. In contrast, the N2 score measures the extent of principled reasoning too, but also includes the respondent's rejection of self-interested reasoning (Rest et al. 1997). This is the score we use to measure the level of moral maturity.

The Revised NEP

The original New Environment Paradigm scale was developed by Dunlap and Van Liere (1978). For years it was the most widely used instrument for measuring a person's fundamental ecological worldview. Hawcroft and

Milfont (2010) evaluated the use of the NEP Scale since its inception. In their meta-analysis of 69 studies, the authors found substantial variation in the uses of the scale, and results found depending on the population of individuals surveyed. In 2000, Dunlap, Van Liere, Mertig, and Jones redeveloped the original instrument and created the revised new environmental paradigm (NEP) scale. Given changes in the nature of environmental issues during the 1980s and 1990s, the scale was revised to reflect a new, modern global environment. This altered version became accepted as a useful measure of individuals' ecological perspective. The revised NEP scale captures additional elements of an ecological worldview, creates a better balance of items reflecting pro-and-anti-environmental attitudes, and modernizes the terminology used to describe ecological elements that reflect challenges in the twenty-first century.

Dunlap et al.'s (2000) scale consists of 15 items that measure a person's fundamental attitudes toward the environment in a paradigmatic sense. The items are based on findings from non-structured interviews of Americans, conducted by Kempton et al. (1995). Three main general sets of environmental beliefs were discovered that affect how individuals make sense of issues related to the environment. The categories they discovered involved: (1) the perception that nature has a balance which is fragile and is easily disrupted by human activity, (2) the belief that nature is a limited resource and, (3) that humans do not have power-over nature (Kempton et al. 1995). The number of operational dimensions has been in dispute with some studies citing as many as four (Furman 1998; Roberts and Bacon 1997), and others as few as one major dimension (Lefcourt 1996). Dunlap et al.'s (2000) study found the items loading on five factors. The authors acknowledged that the number of ecological orientation factors may be culturally sensitive. They suggest that future research should examine the attitudinal dimensions across cultures, hinting that there may be an American bias to the items tested. Our study on French respondents contributes to this cause.

Results: Study 1 (Ability)

For this study on the "Ability" dimension of the CEM, we conducted a regression analysis of DIT-2 scores on the dependent variable, "sustainability orientation." We operationalized this variable by adding the values of the relevant items from the revised NEP scale. Recently, in a retrospective of work utilizing the NEP and its revised version, Dunlap (2008) remarked that researchers often use the revised NEP in an exploratory manner and decide whether to treat it as a single or multidimensional scale based on the results of their data analyses. Both Dunlap and

Van Liere (1978) and Dunlap et al. (2000) used a single score variable. They did not create sub-scales from the factored items. A "large number of recent studies, especially those using the revised NEP Scale, typically sum all items into a single measure of environmental attitudes. They treated the items as measuring one construct even if uni-dimensionality was not found (e.g., Dunlap et al. 2000), and often reported the alpha without examining dimensionality" (Hawcroft and Milfont 2010, p. 144).

In order to test our first hypothesis regarding the relation between a person's cognitive moral development and sustainability orientation, we first evaluated the 15 items on the NEP to see if they loaded into separate factors across the entire population. Negative items were reverse-scored in our calculations. Table 2 illustrates the factor groupings by question on the scale. Our first attempt at dimension reduction revealed that questions 5 and 12 on the scale had very weak loadings (below .240), so we removed them from our analysis. The remaining 13 items were entered into a Varimax Rotation to indicate the presence of four clear factors. Factor 1 grouped questions Q10, Q15, Q08, Q11, Q13. Factor 2 grouped Q02, Q01, Q03. Factor 3 grouped Q14, Q04, Q06. Factor 4 grouped Q07, Q09. Next, we tested for internal consistency so as to determine which factors could be grouped into a single measure. Our goal was to determine high and low degrees of sustainability orientation. Only Factor 1 had an acceptable Cronbach's alpha score (.722). Factor 2 came close to acceptable levels with a Cronbach's alpha of .625. Thus, for our analysis we used only Factor 1. Questions 10 and 15 on the scale pertain to sensitivity to ecological crises. Questions 8 and 13 deal with the balance of nature being upset by humans. Finally, Question 11 involves ecological limits. The only factor not included in this grouping from the original Dunlap et al. (2000) list involves humans' power over the environment.

Total orientation score for the first factor in Table 2 was calculated across the five-item questions from the NEP. We entered the control variable (profession membership) and then the specific independent variables (see Table 3) from the DIT output. In short, we did not find any statistically significant relationships between sustainability orientation and level of cognitive moral development. The N2 score value was marginally significant ($p = .097$) in our model, however, Hypothesis 1 was not supported.

Hypothesis 2a states that there will be a difference in the moral reasoning between financial managers and non-financial managers. Thus, for our populations hypothesis we compared the two groups and found indeed that the financial managers differed significantly in their moral reasoning as measured on the DIT-2 ($F = 4.69$; $p = .03$). Table 4 shows the results of our ANOVA. The financial managers group had higher N2-scores than did the non-financial managers group. Thus, Hypothesis 2a was not

Table 2 Revised NEP factor analysis rotated component matrix ^a

	Component			
	1	2	3	4
Q10	.755	.114	.008	-.069
Q15	.734	.246	.056	.133
Q08	.643	-.077	.395	-.052
Q11	.545	.258	.222	.098
Q13	.543	.187	.057	.372
Q02	.100	.788	.100	-.003
Q01	.195	.688	.060	-.032
Q03	.214	.612	.231	.206
Q14	.059	.123	.777	.217
Q04	.207	.155	.614	.117
Q06	.100	.151	.602	-.516
Q07	-.006	.379	.041	.670
Q09	.165	-.127	.221	.623

Extraction method: principal component analysis

Rotation method: varimax with kaiser normalization

^a Rotation converged in five iterations

supported. However, when we compared the two groups on their sustainability orientation we did not find a statistically significant difference ($t = 1.53$; $p = .127$) between the groups, as illustrated in Table 5. Thus, we do not have support for Hypothesis 2b. We expand on these findings in the “Discussion” section.

Method: Study 2 (Motivation)

For the second study of this CEM project, we used a mixed methods approach involving objective and subjective measures (Tashakkori and Teddlie 1998) related to *motivation*. We measured respondents’ perceived moral

intensity of an environmental issue and their willingness to commit to an action to address the issue. The relationship between a person’s sustainable development values and his/her sustainability orientation is included in our CEM, but we propose this for future research in the “Discussion” section since it is beyond our scope in this present empirical study.

Sample and Procedure

The sample was composed of 200 Bachelor students taking classes in their 2nd, 3rd, and 4th years in the same business school in eastern France. The demographic variables are listed in Table 6. According to McWilliams et al. (2006), “researchers need to use more direct methods, such as interviews and surveys, to ‘tease out’ less self-serving information about the motivations for CSR activity” (p. 9). Vignettes are recommended for organizational ethical research as they give significant background information to the respondent (Fritzsche and Becker 1984). To measure motivation, we used moral intensity vignettes in a “between-subjects” research design. In general, the same subjects cannot get all moral intensity scenarios, as there would be transfer effects, so each respondent was only exposed to one condition. This was administered as an in-class paper-and-pencil exercise for business students. Responses were coded, but kept anonymous.

Measures

Moral Intensity

The moral intensity construct adds a situational/contextual component to our CEM for sustainable decision-making. Our instrument is adapted from Flannery and May’s (2000) study on environmental decision making. They constructed

Table 3 Sustainability orientation and cognitive moral development

Model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	Sig.
	B	Std. Error			
(Constant)	16.001	4.462		3.586	.000
N2 score	.075	.045	.288	1.668	.097
FinanceORNOT	-.394	.453	-.058	-.871	.385
Maintain norms (stage 4)	.006	.047	.021	.135	.893
Personal interest (stage 2/3)	.049	.044	.166	1.096	.274
Gender	.329	.475	.048	.691	.490
Utilizer score	.828	1.642	.034	.504	.615
Religious orthodoxy (proxy measure)	.010	.140	.005	.071	.943
Age	.015	.027	.037	.539	.591
Humanitarian liberalism	.252	.217	.088	1.164	.246

Dependent variable: sustainability orientation

Table 4 Moral maturity of populations (study 1)

Source	Type III sum of squares	df	Mean square	<i>F</i>	Sig.
Corrected model	1352.408 ^a	3	450.803	2.905	.035
Intercept	286746.549	1	286746.549	1847.582	.000
FinanceOrNo	727.374	1	727.374	4.687	.031
Gender	502.950	1	502.950	3.241	.073
FinanceOrNo * Gen	397.065	1	397.065	2.558	.111
Error	49664.316	320	155.201		
Total	345952.835	324			
Corrected total	51016.724	323			

Dependent variable: N2 score
^a $R^2 = .027$ (Adjusted $R^2 = .017$)

Table 5 Sustainability orientation of populations (study 1)

	Mean	Std. deviation	Std. error mean				
Sustainability orientation							
Non-Financial	20.566	3.481	.2911				
Financial	19.966	3.519	.2616				
<i>t</i> -test for Equality of Means							
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>	Mean Difference	Std. Error Difference
Sustainability orientation							
Equal variances assumed	.062	.804	1.53	322	.127	.5998	.39191

Table 6 Demographics of study 2 respondents

Variables of students	Financial	Non- financial	Total
Total	83	117	200
Gender			
Female	42	62	104
Male	41	55	96
Moral intensity scenarios			
A	17	31	48
B	29	24	53
C	20	29	49
D	17	33	50

four wastewater treatment scenarios that varied on the magnitude of consequences factor of moral intensity. Following their lead, we focused primarily on the perceived *magnitude of consequences* of the scenario to measure respondents' view of the severity of the issue. Morris and McDonald (1995) tested all six issue characteristics and found "magnitude" to have one of the greatest effects on decision making. Singer and Singer (1997) discovered that "magnitude" carried the greatest predictive value of all the dimensions. In our second study we manipulated moral intensity in the water treatment scenarios by the existence of severe consequences to humans, the environment, or to both. Respondents were asked on a seven-point Likert scale

to evaluate their willingness to continue operations on the failing water treatment plant, taking the assumed role of Financial Director of the company. We also asked them to evaluate (from 1 to 7) how severe they perceived the consequences to be. Respondents were additionally requested to rate their prior experience with such an issue, which we used as a control variable.

Results: Study 2 (Motivation)

To test our hypothesis that factors related to perceived moral intensity of an environmental issue will affect a person's willingness to act in a sustainably responsible manner, we used multiple comparison procedures. After running an ANOVA *F* test, we utilized a Bonferroni correction to mitigate the problems associated with multiple comparisons. Our *F* test was statistically significant indicating that the group's means were similar. Next, we ran a dummy-variable regression analysis since we had no covariates in our design save for the four condition assignments. We confirmed that indeed our experimental condition groups are different.

Table 7 shows a series of paired samples tests on each of the scenarios for moral intensity using perceived magnitude of consequences as a proxy. We ran this as a manipulation check of our experimental conditions. Results indicate that respondents did indeed perceive the

Table 7 Perceived magnitude of consequences (entire sample) paired samples test

		Paired Differences				<i>t</i>	df	Sig. (two-tailed)	
		Mean	Std. deviation	Std. Error Mean	95 % confidence interval of the difference				
					Lower				Upper
Pair 1	High (Both)–Low	.50000	1.61113	.23255	.03218	.96782	2.150	47	.037
Pair 2	Low–High (Human)	–.38776	1.45511	.20787	–.80571	.03020	–1.865	48	.068
Pair 3	Low–High (Env)	–.58000	1.47205	.20818	–.99835	–.16165	–2.786	49	.008
Pair 4	High (Human)–High (Env)	–.18367	1.23615	.17659	–.53874	.17139	–1.040	48	.304
Pair 5	High (Both)–High (Env)	–.06250	1.29494	.18691	–.43851	.31351	–.334	47	.740

consequences to be different based on our experimental conditions. For the entire sample, Pair 1 in which both humans and the environment were potentially greatly harmed and the control condition, in which there is no stated harm, there was a strong statistically significant result ($t = 2.15$; $p = .037$). What is more interesting is that our sample seemed to emphasize consequences to the environment over harm to humans. The greatest significance is seen between the control group and the consequence to the environment ($p = .008$).

We next ran an ANOVA where we verified that there were indeed differences in respondents' willingness to act in a sustainably responsible manner (Table 8). Recall that respondents were asked if they are likely to continue operating the water treatment plant (omission) based on the information given in the scenario. To find the source of the variance, we first ran a series of paired samples t tests of the difference of the mean (Table 9). Again, we see a major difference in willingness to act based on harm to the environment ($t = 3.62$; $p = .001$). Next, we ran a dummy variable regression to find if perceived magnitude of consequences affected a person's willingness (intent) to act in a sustainably responsible manner across the four experimental conditions (Table 10). From this analysis, we see that Hypothesis 3 was supported. Since our sample in this study is composed of business students, and not business practitioners, we purposely did not test the difference between finance students and students from other business majors.

Table 8 Willingness to Act: ANOVA

Model	Sum-of-squares	df	Mean square	<i>F</i>	Sig.
Regression	73.268	5	14.654	6.643	.000 ^a
Residual	313.239	142	2.206		
Total	386.507	147			

Dependent variable: Willingness to Act

^a Predictors: (Constant), DumCaseHum, DumExperience, Gender, DumCaseBoth, DumCaseEnv

Discussion

This research project holds potential significance for *both* the decision sciences/heuristics field, as well as for the business and society field. It is important for ethicists to have greater insights into how perceptions of sustainability issues affect a person's motivation to engage in strategic environmental decisions. Overall, our study examines the influence of a person's ability to make sophisticated moral decisions toward environmental issues, as well as the effects of the issue context on a person's intent to act. We found that among a sample of French managers, an individual's level of cognitive moral development did not affect his/her orientation toward sustainability issues. However, we did find that the characteristics of the sustainability issue did affect a person's willingness to act in a sustainably responsible manner. Thus, we make the case for the inclusion of the moral intensity construct in the CEM for sustainability decision-making. We show that human behavior toward sustainability is better explained through an understanding of the interaction of personal characteristics (ability) and contextual factors (situation).

In study 1, we examined the personal characteristics of financial and non-financial managers. Hypothesis 1 looked at the entire sample together to test whether a person's level of moral maturity is related to that person's sustainability orientation. Here, we found marginal support for our prediction that individuals with higher moral development scores are more likely to be oriented toward sustainability. We speculate that perhaps this interesting discovery may be related to cultural variables in France. A person's belief system is determined partially by the degree to which s/he agrees or disagrees with the statements about humans' relationship with the environment (Dunlap et al. 2000). An individual with a pro-ecological orientation (as determined by a high score on the Revised NEP scale) is likely to have pro-environmental beliefs on a wide range of issues (Pierce et al. 1999). In France, the principles of "Liberty", "Equality", and "Fraternity" are widely believed and are thought to be pertinent to discussions related to

Table 9 Willingness to maintain the status-Quo (entire sample) paired samples test

	Paired differences				<i>t</i>	df	Sig. (two-tailed)	
	Mean	Std. deviation	Std. Error Mean	95 % confidence interval of the difference				
				Lower				Upper
HighCon (both)–LowCon	–1.18750	1.96411	.28349	–1.75782	–.61718	–4.189	47	.000
HighCon (hum)–HighCon (Envir)	.57143	2.02073	.28868	–.00899	1.15185	1.979	48	.054
HighCon (both)–HighCon (hum)	–.58333	2.22972	.32183	–1.23078	.06411	–1.813	47	.076
HighCon(both)–HighCon (Envir)	–.02083	2.09853	.30290	–.63018	.58852	–.069	47	.945
LowCon–HighCon (Envir)	1.16000	2.26202	.31990	.51714	1.80286	3.626	49	.001
HighCon (hum)–LowCon	–.59184	2.15946	.30849	–1.21211	.02843	–1.918	48	.061

Table 10 Dummy variable regression: coefficients

Model	Unstandardized coefficients		Standardized coefficients Beta	<i>t</i>	Sig.
	<i>B</i>	Std. error			
(Constant)	3.627	.305		11.872	.000
Gender	.341	.248	.105	1.375	.171
DumExperience	–.115	.247	–.035	–.466	.642
DumCaseBoth	–1.528	.358	–.389	–4.268	.000
DumCaseEnv	–1.605	.334	–.448	–4.805	.000
DumCaseHum	–.604	.346	–.160	–1.742	.084

Dependent variable: Willingness to Act

sustainability (Pouteau 2000). Thus, if in this particular culture, sustainability is a deeply held belief, conventional reasoners (on the Cognitive Moral Development scale) will not necessarily be differentiated from post-conventional reasoners in terms of their concern for sustainable issues.

For the Populations hypotheses relating “Ability” variables, we did not find support for our Hypothesis 2a that financial managers are lower in cognitive moral development than are non-financial managers. In fact, we found evidence to the contrary. This somewhat counter-intuitive finding warrants further investigation. Weber and Wasieleski (2001) suggests that the degree of social interaction required in a particular job function may affect a person’s moral reasoning. Greater social involvement may lead to a broad socio-moral perspective in individuals. It is possible that we under-emphasized the extent to which financial managers are boundary-spanners and interact with organizational stakeholders. We speculate this could account for our results in this paper.

Also in study 1, we found that financial managers had a stronger sustainability orientation than did non-financial managers, which was the opposite of what we predicted in Hypothesis 2b. This very interesting finding was also not expected and should be investigated further. We found no

effects of moral reasoning on strength of sustainability orientation, nor did we find effects based on job function (financial vs. non-financial). Perhaps our results are consistent with a certain resignation of French managers in believing that they do not have the power to bring about change on their own volition. This is reflected in the high rating France scores on Hofstede’s (1980) scale of power-distance. For this sample, perhaps individuals’ moral maturity level is not a major determinant of their sustainability orientation and that cultural factors such as, the law, are more influential for instituting change. Indeed, in France businesses are subject to the Nouvelles Régulations Economiques, which since 2001 oblige publicly traded companies to communicate their social and environmental results to external stakeholders. The French culture typically relies on changes in national and international laws to mandate changes in the perception of social issues (Kelly 2001). That is, social change is likely to succeed legislative change. This is consistent with France’s high score on the uncertainty avoidance cultural dimension of Hofstede (1980) framework.

The second study on motivation variables revealed that willingness to act in a sustainably responsible manner was affected by perceived magnitude of consequence to humans and/or the environment. Hypothesis 3 was supported in this study. Here we examined how a major component of moral intensity indeed appears to have an effect on commission/omission. While we do not measure actual behavior, our instrument does reveal *intent* to act in a sustainable manner when the ecological issue is perceived to have high levels of consequences. Emotions elicited by perceptions of a sustainability issue can lead to a greater understanding of why individuals sometimes decide to maintain social norms related to the environment, and why in other contexts, those same individuals are not motivated to address sustainability concerns. Our findings are consistent with the moral intensity literature (Flannery and May 2000). We suggest that future research should

examine additional ecological issues and test perceptions across the other moral intensity factors.

Implications for Practice

In our study, we stressed the importance of non-monetary incentives in motivating sustainability decision making. Research has shown that for public goods related to the environment, reciprocity-based incentives that involve an opportunity to punish defectors after the fact will control the violators of social norms (Wasieleski and Hayibor 2009). From economic game theory, cooperation in public goods games becomes self-reinforcing when players get the impression that others care about the collective outcome. Social approval is a key determinant of social norms (i.e., social consensus from moral intensity). Imposing monetary fines on individuals who abuse public goods does not always lead to cooperative behavior because it turns defection into market transaction (Fehr and Falk 2002). “If a society wants to mobilize the incentives arising from social (dis)approval for the enforcement of norms, it should choose forms of punishment that make unambiguously clear that norm violations are morally wrong” (p. 711). This is why our focus in this present paper was on non-monetary factors. Future research should attempt to find ways to raise the social consensus that the norm violations related to the environment are morally unacceptable. For those financial managers who are not convinced they should make a concern for the environment a part of their strategic decision-making process, an increased awareness of stakeholders’ concerns may make a difference.

Financial managers—especially CFOs and management controllers—will have to design social and environmental performance indicators to operationalize CSR once it is in the strategy of their company. Performance indicators are part of the management control system of companies. Thus, financial managers can help create a sustainability orientation for their company through the redesigning of their management control systems. This needs to be carried out carefully as new management control systems are likely to change managerial attitudes toward issues. Cultural differences should be acknowledged in this process (Lau and Caby 2010), especially for multinational companies. A real future challenge for these companies is to become a leader in this area and act as an example to others so as to promote sustainability concerns.

Limitations

The instrument used to measure “ability” in our model, the DIT, is limited to cognition—that is, to moral judgment, and not moral action. The DIT does not measure what individuals actually decide, only what the individuals think

of the moral dilemmas (Prat dit Hauret 2003). Kohlberg (1969) states that moral judgement is a necessary condition for moral action, but not sufficient enough. Virtues such as honesty, altruism and resistance to temptation are also necessary. According to Blasi (1980), there is correlation between moral judgment and moral action, but there is little evidence that individuals with a higher level of cognitive moral development are more honest and altruistic, although persons with these attributes would resist better the pressure to conform. We point out that moral commission tendencies are not measured by the DIT.

Even though we only examined business practitioners from France in this present paper, we do not expect there to be a difference in the moral reasoning based on national country of origin. Singhapakdi et al. (2001) claim that cross-cultural differences based on political environment, legal foundations, and economic forces contribute to differences in perceived importance of issues related to ethics and social responsibility. However, Pinkston and Carroll (1996) argue that while culture matters, the similarity in the way French, American, German, and Japanese cultures view the interaction between business and society is strong. Thus, we would expect our findings to be generalizable to other Western societies, but perhaps not to *all* societies that may vary on individualism, power-distance, uncertainty avoidance (Hofstede 1980) and long-term orientation (Hofstede 1993). Future research should examine these very important dimensions for global sustainable businesses.

Future Research Propositions

For our CEM model, we expect both ability and motivation variables to trigger the ethical decision-making process for sustainability issues. This leaves open the opportunity for much future work in the area. Our research project involves empirically testing several aspects of an adapted CEM for decision-making involving sustainability. For pragmatic reasons, this ambitious task must be broken into multiple iterations. It is necessary to leave some proposed theoretical relationships for future studies due mainly to instrument fatigue for our respondents. We had to have a manageable scope for this present paper. Referring back to Fig. 1, we briefly offer research propositions for a few of the relationships we see conceptually, but do not test empirically in the current piece.

In study 1 of this paper, we examined personal characteristics that may affect a person’s ability to address sustainable development issues. Our model acknowledges the potential influence of individual values on the process of sustainable decision making. However, our hypotheses deal with cognitive variables only. The relationship between a person’s moral development and values should be

explored. Ho (2008) found that cultural values had a significant affect on individuals' moral development among a sample of accounting students. We think this relationship has the potential to enrich our CEM. Moreover, perceptions of issues can be affected by an individual's personal values (Agle and Caldwell 1999). For instance, Hemingway and MacLagan (2004) stated that managerial values should affect personal attitudes toward CSR and the perceptions of related issues. They admit, however, that this area of study warrants further attention. Similarly, Hemingway (2005) related personal values to the willingness to engage in social entrepreneurship ventures. Building on this logic, we would like to extend this thinking to include attitudes toward sustainability. We offer the proposition:

Proposition 1 *Individuals with strong sustainability values are more intrinsically motivated to perceive the importance of sustainability for corporate strategy.*

Hypotheses 1 and 2a involved a person's sustainability orientation. But, we did not test the relationship between a person's orientation and intent to act. It is reasonable to posit that persons who have a strong orientation toward sustainable development would intend to act in a sustainably responsible manner when given the opportunity. Fraedrich and Ferrell (1992), for instance, argued that a person's philosophical orientation toward an issue affects how they make judgments as well as their intentions. Several studies have found statistically significant relationships between ecological orientations (as measured by the NEP Scale which is discussed in the Method section) and behavioral intent (see Dunlap et al. 2000 for a list). It follows that:

Proposition 2 *Individuals who are sustainability oriented are likely to intend to act in a sustainably responsible manner.*

Building on study 2, we found that perceived magnitude of consequences affects a person's willingness to act on an issue. We believe this needs to be explored further. Despite the knowledge that values are antecedents of attitude formation and action, there is not much conclusive work conducted on the effect of personal values on perceptions of moral intensity. Singhapakdi et al. (1994) found that American and Thai marketers differed significantly on all ethics variables they studied, including values. "People pay attention to what matters to them, and they pay correspondingly more attention to what they value more" (p. 567). So, it is reasonable to expect perceived moral intensity to be affected. More recently, Marta and Singhapakdi (2005) found that ethical values do have an influence on how people perceive issues. In their marketing study, the authors explained a cultural source of values. Perhaps, the future research would also wish to include a

cross-cultural dimension to this discourse. We would expect that a person's sustainable development value sets would differ by culture. This, in turn, may affect how actual sustainability issues are perceived. Proposition 3 states:

Proposition 3 *An individual's sustainability values set will affect how morally intense he or she perceives a sustainable development issue to be.*

Conclusion

In the decision-making literature, an extensive body of research has focused on the perceived differences between taking action, and non-action. Generally speaking, people tend to view a decision to act more negatively (regretting it more) than a decision not to act, given the same negative consequence (cf. Kahneman and Tversky 1982; Kahneman and Miller 1986; Ritov and Baron 1990). This reluctance is an example of *omission bias* (Spranca et al. 1991), the tendency to favor omissions over otherwise equivalent commissions. Spranca et al. (1991) also found that many subjects considered commissions that caused harm to be morally worse than omissions that caused harm. Relatedly, decisions to maintain the status-quo tend to be regretted less than decisions to change (Samuelson and Zeckhauser 1988). With regard to the omission bias, people may reason that omissions do not cause outcomes or that commissions reveal more intent and are more closely related to responsibility than are omissions. Perhaps it is difficult to be motivated to commit to decisions that break with the status-quo. Unfortunately, the legacy of ethics, sustainability, requires that the status quo be broken and that key decision makers in organizations do not neglect to act on behalf of future generations with regard to the environment.

References

- Agle, B. R., & Caldwell, C. B. (1999). Understanding research on values in business. *Business and Society*, 38(3), 326–387.
- Allouche, J., & Laroche, P. (2005). A meta-analytical examination of the link between corporate social and financial performance. *Revue de Gestion des Ressources Humaines*, 57, 18–41.
- Ambec, S., & Lanoie, P. (2009). Performance Environnementale et Economique de l'Entreprise. *Economie et Prévision*, 190–191, 71–94.
- Aupperle, K. E. (1984). An empirical measure of corporate social orientation. *Research in Corporate Social Performance and Policy*, 6, 27–54.
- Blasi, A. (1980). Bridging moral cognition and moral action: A critical review of the literature. *Psychological Bulletin*, 88(1), 1–45.

- Brenner, S. N., & Molander, E. A. (1977). Is the ethics of business changing? *Harvard Business Review*, 55(1), 57–71.
- Brundtland Commission. (1987). Our common future. World Commission on Environment and Development.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116–131.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4(4), 497–505.
- CIMA. (2010). Accounting for climate change. How management accountants can help organisations mitigate and adapt to climate change. London: Chartered Institute of Management Accountants.
- Colby, A., & Kohlberg, L. (1987). The measurement of moral judgment. In *Theoretical foundations and research validations* (Vol. 1). Cambridge, MA: Cambridge University Press.
- Dunlap, R. E. (2008). The new environmental paradigm scale: From marginality to worldwide use. *The Journal of Environmental Education*, 40(1), 3–18.
- Dunlap, R. E., & Van Liere, K. D. (1978). The 'new environmental paradigm': A proposed measuring instrument and preliminary results. *The Journal of Environmental Education*, 9(4), 10–19.
- Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues*, 56, 425–442.
- Elkington, J. (1998). *Cannibals with forks: The triple bottom line of 21st century business*. Gabriola Island, BC: New Society Publishers.
- Fehr, E., & Falk, A. (2002). Psychological foundations of incentives. *European Economic Review*, 46, 687–724.
- Flannery, B. L., & May, D. R. (2000). Environmental ethical decision making in the U.S. Metal-finishing industry. *Academy of Management Journal*, 43(4), 642–662.
- Fraedrich, J., & Ferrell, O. C. (1992). Cognitive consistency of marketing managers in ethical situations. *Journal of the Academy of Marketing Science*, 20(3), 245–252.
- Freeman, R. E. (1994). The politics of stakeholder theory: Some future directions. *Business Ethics Quarterly*, 4(4), 409–421.
- Freeman, R. E., & Harris, J. (2009). Creating ties that bind. *Journal of Business Ethics*, 88(4), 685–692.
- Fritzsche, D., & Becker, H. (1984). Linking managerial behavior to ethical philosophy—An empirical investigation. *Academy of Management Journal*, 27, 166–175.
- Furman, A. (1998). A note on environmental concern in a developing country. Results from an Istanbul survey. *Environment and Behavior*, 30(4), 520–534.
- Godos-Diez, J. L., Fernandez-Gago, R., & Martinez-Campillo, A. (2011). How important are CEOs to CSR practices? An analysis of the mediating effect of the perceived role of ethics and social responsibility. *Journal of Business Ethics*, 98, 531–548.
- Goolsby, J. R., & Hunt, S. D. (1992). Cognitive moral development and marketing. *Journal of Marketing*, 56(1), 55–68.
- Griffin, J. J., & Mahon, J. F. (1997). The corporate social performance and corporate financial performance debate. *Business and Society*, 36(1), 5–31.
- Haines, R., & Leonard, L. N. K. (2007). Situational influences on ethical decision-making in an IT context. *Information and Management*, 44, 313–320.
- Hawcroft, L. J., & Milfont, T. L. (2010). The use (and abuse) of the new environmental paradigm scale over the last 30 years: A meta-analysis. *Journal of Environmental Psychology*, 30, 143–158.
- Hemingway, C. A. (2005). Personal values as a catalyst for corporate social entrepreneurship. *Journal of Business Ethics*, 60, 233–249.
- Hemingway, C. A., & MacLagan, P. W. (2004). Managers' personal values as drivers of corporate social responsibility. *Journal of Business Ethics*, 50, 33–44.
- Ho, Y. H. (2008). Cultural values and cognitive moral development of accounting ethics: A cross-cultural study. *Social Behavior and Personality*, 36(7), 47–60.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverley Hills, CA: Sage.
- Hofstede, G. (1993). Cultural constraints in management theories. *The Executive*, 7(1), 81–94.
- Howell, R. A. (2006). The CFO: From controller to global strategic partner. *Financial Executive*, 22(3), 20–26.
- Jaffe, E. D., & Pasternak, H. (2006). Moral intensity as a predictor of social responsibility. *Business Ethics: A European Review*, 15(1), 53–63.
- Jones, T. M. (1991). Ethical decision-making by individuals in organizations: An issue-contingent model. *Academy of Management Review*, 16(2), 366–395.
- Kahneman, D. (2011). *Thinking, fast and slow*. New York: Straus and Giroux.
- Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, 93(2), 136–153.
- Kahneman, D., & Tversky, A. (1982). On the study of statistical intuitions. *Cognition*, 11, 123–141.
- Kelley, P. C., & Elm, D. R. (2003). The effect of context on moral intensity of ethical issues: Revising Jones's issue-contingent model. *Journal of Business Ethics*, 48(2), 139–154.
- Kelly, M. (2001). *French culture and society: The essentials*. New York: Arnold Publishers.
- Kempton, W., Boster, J. S., & Hartley, J. A. (1995). *Environmental values in American culture*. Cambridge, LA: MIT Press.
- Kohlberg, L. (1969). Stages and sequences: The cognitive developmental approach to socialization. In D. A. Goslin (Eds.), *Handbook of socialization theory and research* (pp. 347–480). Chicago, IL: Rand McNally.
- Lau, C. M., & Caby, J. (2010). The effects of national culture on the role of participation in different task situations. *Advances in Accounting, Incorporating Advances in International Accounting*, 26, 128–133.
- Lefcourt, H. M. (1996). Perspective-taking humor and authoritarianism as predictors of anthropocentrism. *Humor*, 9, 57–71.
- Logsdon, J. M., & Wood, D. J. (2002). Business citizenship: From domestic to global level of analysis. *Business Ethics Quarterly*, 12(2), 155–187.
- Lovisky, G., Trevino, L., & Rick, J. (2007). Assessing managers ethical decision-making: An objective measure of managerial moral judgment. *Journal of Business Ethics*, 73(3), 263–285.
- Marta, J. K. M., & Singhapakdi, A. (2005). Comparing Thai and U.S. Businesspeople: Perceived intensity of unethical marketing practices, corporate ethical values, and perceived importance of ethics. *International Marketing Review*, 22, 562–577.
- McWilliams, A., Siegel, D. S., & Wright, P. M. (2006). Corporate social responsibility: Strategic implications. *Journal of Management Studies*, 43, 1–18.
- Morris, S. A., & McDonald, R. A. (1995). The role of moral intensity in moral judgments: An empirical investigation. *Journal of Business Ethics*, 14, 715–726.
- Oakley, I., Chen, M., & Nisi, V. (2008). Motivating sustainable behavior. In *Proceedings of UbiComp annual meeting, Seoul*.
- Oosterbeek, H., Sloof, R., & Van de Kuilen, G. (2004). Culture differences in ultimatum game experiments: Evidence from a meta-analysis. *Experimental Economics*, 7, 171–188.
- Petty, R. E. (1995). Attitude change. In A. Tesser (Ed.), *Advances in social psychology* (pp. 194–255). New York, NY: McGraw-Hill.
- Petty, R. E., Haugtvedt, C. P., & Smith, S.M. (1995). Elaboration as a determinant of attitude strength: Creating attitudes that are persistent, resistant, and predictive of behavior. In R. E. Petty, & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 93–130). Mahwah, NJ: Erlbaum.

- Pialot, D. (2009). La Performance “Durable” Doit Etre Mieux Pilotée’. La Tribune, December 3.
- Pierce, J. C., Dalton, R. J., & Zaitsev, A. (1999). Public perceptions of environmental conditions. In R. J. Dalton, P. Garb, N. P. Lovrich, J. C. Pierce, & J. M. Whitely (Eds.), *Critical masses: Citizens, nuclear weapons, production, and environmental destruction in the United States and Russia* (pp. 97–129). MA, Cambridge: MIT Press.
- Pinkston, T. S., & Carroll, A. B. (1996). A retrospective examination of CSR orientations: Have they changed? *Journal of Business Ethics, 15*(2), 199–206.
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review, 89*(1/2), 62–77.
- Prat dit Hauret, C. (2003). Audit et Développement Moral Cognitif. *Finance Contrôle Stratégie, 6*(3), 117–136.
- Rest, J. R. (1979). *Development in judging moral issues*. Minneapolis, MN: University of Minnesota Press.
- Rest, J. R. (1986). *Moral development: Advances in research and theory*. New York, NY: Praeger.
- Rest, J., Narvaez, D., Bebeau, M. J., & Thoma, S. J. (1999). *Postconventional moral thinking: A neo-Kohlbergian approach*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Rest, J., Thoma, S., & Edwards, L. (1997). Designing and validating a measure of moral judgment: Stage preference and stage consistency approaches. *Journal of Educational Psychology, 89*(1), 5–28.
- Ritov, I., & Baron, J. (1990). Reluctance to vaccinate: Omission bias and ambiguity. *Journal of Behavioral Decision Making, 3*, 263–277.
- Roberts, J. A., & Bacon, D. R. (1997). Exploring the subtle relationships between environmental concern and ecologically conscious consumer behavior. *Journal of Business Research, 40*, 79–89.
- Roman, R. M., Hayibor, S., & Agle, B. R. (1999). The relationship between social and financial performance. *Business and Society, 38*(1), 109–125.
- Ryan, L. V., Buchholtz, A. K., & Kolb, R. W. (2010). New directions in corporate governance and finance: Implications for business ethics research. *Business Ethics Quarterly, 20*(4), 673–694.
- Samuelson, W., & Zeckhauser, R. (1988). Status Quo bias in decision making. *Journal of Risk and Uncertainty, 1*(1), 7–59.
- Shafer, W. E., Fukukawa, K., & Meina Lee, G. (2007). Values and the perceived importance of ethics and social responsibility: The U.S. versus China. *Journal of Business Ethics, 70*, 265–284.
- Shrivastava, P. (1995). The role of corporations in achieving ecological sustainability. *Academy of Management Review, 20*(4), 936–960.
- Singer, M. S., & Singer, A. E. (1997). Observer judgments about moral agents’ ethical decisions: The role of scope of justice and moral intensity. *Journal of Business Ethics, 16*, 473–484.
- Singhapakdi, A., Karande, K., Rao, C. P., & Vitell, S. J. (2001). How important are ethics and social responsibility? A multinational study of marketing professionals. *European Journal of Marketing, 35*(1/2), 133–153.
- Singhapakdi, A., Vitell, S. J., & Kraft, K. L. (1996). Moral intensity and ethical decision-making of marketing professionals. *Journal of Business Research, 36*(3), 245–255.
- Smith, W., & Blackburn, R. (1988). Corporate social responsibility: A psychometric examination of a management instrument. In *Proceedings of the southern management association* (pp. 293–295).
- Smith, W. J., Wokutch, R. E., Harrington, K. V., & Dennis, B. S. (2001). An examination of the influence of diversity and stakeholder role on corporate social orientation. *Business and Society, 40*(3), 266–294.
- Spranca, M., Minsk, E., & Baron, J. (1991). Omission and commission in judgment and choice. *Journal of Experimental Social Psychology, 27*(1), 76–105.
- Sroufe, R., & Sarkis, J. (2007). *Strategic sustainability: State of the art corporate environmental management systems*. Sheffield, UK: Greenleaf Publishing.
- Stilwell, G. (2009). Sustainability reporting. *Financial management, Nov*, 27–28.
- Street, M. D., Douglas, S. C., Geiger, S. W., & Martinko, M. J. (2001). The impact of cognitive expenditure on the ethical decision-making process: The cognitive elaboration model. *Organizational Behavior and Human Decision Processes, 86*, 256–277.
- Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- Trevino, L. K. (1986). Ethical decision making in organizations: A person-situation interactionist model. *Academy of Management Review, 11*(3), 601–617.
- Trevino, L. K. (1992). Moral reasoning and business ethics: Implications for research, education and management. *Journal of Business Ethics, 11*, 445–459.
- United Nations Environment Programme: (2004). *Sustainable motivation: Attitudinal and behavioral drivers for action*. London: ESOMAR.
- Warming-Rasmussen, B., & Windsor, C. A. (2003). Danish evidence of auditors’ level of moral reasoning and predisposition to provide fair judgements. *Journal of Business Ethics, 47*(2), 77–88.
- Wasieleski, D. M., & Hayibor, S. (2009). Evolutionary psychology and business ethics research. *Business Ethics Quarterly, 19*(4), 587–616.
- Watley, L. D., & May, D. R. (2004). Enhancing moral intensity: The roles of personal and consequential information in ethical decision-making. *Journal of Business Ethics, 50*, 105–126.
- Weber, J. (1996). Influences upon managerial moral decision making: Nature of the harm and magnitude of consequences. *Human Relations, 49*(1), 1–22.
- Weber, J., & Wasieleski, D. M. (2001). Investigating influences on managers’ moral reasoning. *Business and Society, 40*(1), 79–111.
- Wood, D. J. (1991). Social issues in management: Theory and research in corporate social performance. *Journal of Management, 17*(2), 383–406.
- World Business Council for Sustainable Development. (1999). *Corporate social responsibility: Meeting changing expectations*. Geneva: WBCSD.
- Yetmar, S. A., & Eastman, K. K. (2000). Tax practitioners’ ethical sensitivity: A model and empirical examination. *Journal of Business Ethics, 26*(4), 271–288.

Copyright of Journal of Business Ethics is the property of Springer Science & Business Media B.V. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Copyright of Journal of Business Ethics is the property of Springer Science & Business Media B.V. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.