



## Employee Environmental Behaviors

**Abstract** This chapter provides a review of current knowledge on pro-environmental behaviors in organizations. A classification based on the following 4 characteristics will be proposed: the type of behavior, the degree of inclusion in work tasks, the required intensity, and the type of position held. The main methods used in the study of employee environmental behavior are also discussed.

**Keywords** Definition · Classification · Operationalization · Methods

### 3.1 DEFINITION, CLASSIFICATION AND CONCEPT

#### 3.1.1 *Main Conceptual Definitions*

In one of the first critical literature reviews to be published on the drivers of pro-environmental behaviors (PEBs) in organizations, Lo, Peters, and Kok (2012) emphasized the wide variety of concepts used in research on how employees behave responsibly toward the environment. My own overview of the literature indicates that, since this first review, the study of specific behaviors has not only grown dramatically but has also led to a proliferation of terms used to classify specific behaviors in distinct categories. While some scholars have opted to use the term “organizational citizenship behavior for the environment” (Paillé, Boiral, & Chen,

2013), others prefer to speak of “PEBs,” (Zibarras & Coan, 2015) “corporate greening behavior,” (Ramus & Killmer, 2007) “employee green behavior,” (Norton, Parker, Zacher, & Ashkanazy, 2015) or “environmental workplace behaviors” (Ciocirlan, 2017). The range of competing concepts and definitions found in the literature is simply a reflection of the depth and richness of this field of study, despite its relative infancy.

The sheer variety of concepts used in this area raises several questions: does the terminology currently in use reflect semantic choices aimed at locating and defining the different disciplinary fields of management and environmental psychology in relation to one another? Do the terms used refer to different constructs designed to account for a specific environmental reality? Given the wide range of concepts involved in the study of environmental issues in organizational settings, an interesting challenge is to determine the extent to which they overlap or differ. I propose to draw a connection between them by using the definitions provided by the promoters of the concepts as a point of reference. Figure 3.1 provides a visual representation of the matter.

Ramus and Killmer (2007) argued that “corporate greening behaviours are best conceived of as prosocial organizational behaviours” (p. 556). They also argued that most employees tend not to view such behaviors as required tasks. The idea broadens the discussion to a wider question about the extent to which environmental issues are included in work tasks, the aim being to explicitly determine whether a given environmental behavior should be viewed in in-role or extra-role terms. This view is shared by Mesmer-Magnus, Viswesvaran, and Wiernik (2012), who argued that “pro-environmental behaviors encompass all individual behaviors that contribute to environmental sustainability” (p. 169).

Other definitions are more inclusive since they propose to include both individual actions aimed at protecting the environment and behaviors that are potentially harmful to the environment. Ones and Dilchert (2012b) adopted a broader view, using the concept of “employee green behavior” defined as “scalable actions and behaviors that employees engage in that are linked with and contribute to or detract from environmental sustainability” (p. 87). More recently, Ciocirlan (2017) introduced the notion of environmental workplace behaviors, defined as “work behaviors directed toward the protection or improvement of the natural environment, which may or may not generate value for the organization; these behaviors may be performed by employees situated at any organizational level” (p. 56).

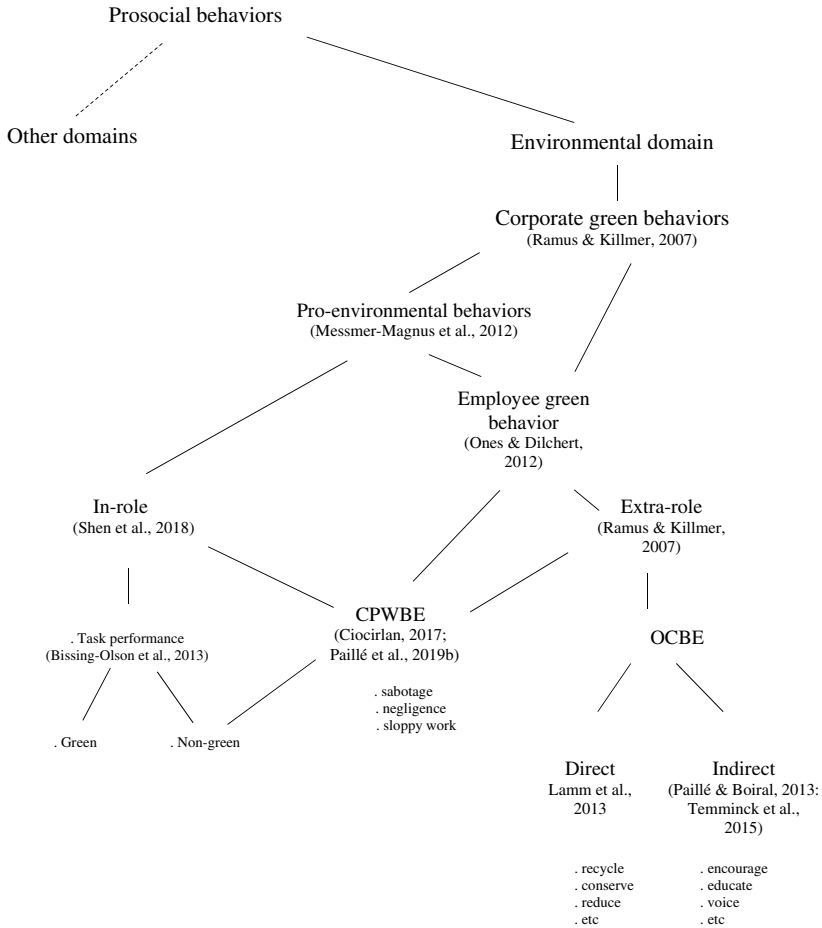


Fig. 3.1 Suggested links between concepts

The concept of organizational citizenship behaviors for the environment (OCBE) is explicitly rooted in the literature on organizational citizenship behaviors. In that sense, the notion of OCBE may be viewed as an explicit extension and application of the concept of citizenship behaviors to the environmental domain. The extension is explicit in the sense that, in their conceptualization, items are clearly oriented toward

individual positions or views with respect to environmental matters. Interestingly, one of the founding texts of organizational citizenship research (Bateman & Organ, 1983) suggests that questions relating to the environment in the broadest sense are implicit. For example, the authors note that “[t]he items tapped a variety of behaviors such as compliance, altruism, dependability, housecleaning, complaints, waste, cooperation, criticism of and arguing with others, and punctuality” (p. 589). While it is objectively difficult to make any assumptions about the authors’ intentions, and without wishing to overinterpret their arguments or findings, the topics of housecleaning and waste may be said to be in some sense connected to, or to fall within the remit of, ecological and environmental questions.

However, these similarities are more explicitly apparent in two papers published by Daily, Govindarajulu, and Bishop (2009) and Boiral (2009). Daily et al. (2009) proposed to define OCBEs as “discretionary acts by employees within the organization not rewarded or required that are directed toward environmental improvement” (p. 246), while Boiral and Paillé (2012) defined OCBE as “individual and discretionary social behaviours that are not explicitly recognized by the formal reward system and that contribute to a more effective environmental management by organizations” (p. 431). These definitions involve three key elements of organizational citizenship behavior: the discretionary, voluntary, and performative nature of environmental behaviors in work settings. The following pages will seek to develop complementary approaches while examining OCBE in different forms, including individual behavioral intentions aimed at participation, support, and encouragement to adopt green behaviors (Boiral, 2009; Boiral and Paillé, 2012), practical individual actions toward the environment (recycling and energy saving) (Lamm, Tosti-Kharas, & Williams, 2013), suggestions, voicing, and the dissemination of ideas relating to the environment (Temminck, Mearns, & Fruhen, 2015). Though still only nascent in many respects, the literature devoted to organizational citizenship behaviors for the environment now appears to have reached a stage where it may be able to emancipate itself from the research framework governing the study of organizational citizenship behaviors.

The dotted arrow indicates that, when departing from a strictly environmental framework, pro-environmental behaviors only represent one form of individual engagement among others.

### 3.1.2 *Main Eco-Friendly Behaviors in the Workplace*

The topic of eco-friendly behaviors in the workplace is now a well-documented issue. While several typologies have been developed to address the issue, the most complete and accomplished work carried out to date is the typology involving employee green behaviors (Ones & Dilchert, 2012b), which has been used as the basis for a significant number of studies in the field (Francoeur, Paillé, Yuriev, & Boiral, 2019; Norton et al., 2015). Depending on the case at hand, the typology includes a varying number of environmental behaviors around the five categories defined by Wiernik et al. (2016: p. 5). The number of subcategories has been further refined in recent research, as illustrated, for example, by Francoeur et al. (2019), who proposed “to consider environmental civic mindedness, environmental voice behavior, and performing sustainable daily work as subcategories of taking initiatives, influencing others, and transforming, respectively” (p. 20).

- Conserving (recycling, reusing, reducing, repurposing): “behaviors aimed at avoiding wastefulness and preserving resources.”
- Avoiding Harm (pollution monitoring, environmental impact, strengthening ecosystems, choosing responsible alternatives): “Behaviors involving avoidance and inhibition of negative environmental behaviors.”
- Working Sustainably (Changing how work is done, creating sustainable products and processes, embracing innovation for sustainability, performing sustainable daily work): “behaviors aimed at enhancing the environmental sustainability of work products and processes.”
- Influencing Others (Educating and training for sustainability, encouraging and supporting others, initiating programs and policies, environmental voice behavior): “Behaviors aimed at spreading sustainability behaviors to other individuals”
- Taking Initiative (Lobbying and activism, putting environmental interests first, environmental civic mindedness): “Behaviors which involve pro-actively initiating new behaviors or making personal sacrifices for sustainability.”

Based on a review of forty years of research on environmental practices at the individual level in the workplace, Francoeur et al. (2019) also found that behaviors relating to the category “conserving” have

received considerable attention compared to behaviors belonging to the categories “avoiding harm” and “transforming,” a finding consistent with the results of another study (Yuriev, Dahmen, Paillé, Boiral, & Guillaumie, 2020). The literature also shows that recycling is the most widely studied individual behavior. Environmental research has shown that employees routinely engage in recycling practices in their workplace, such as paper recycling (Lamm et al., 2013), glass, plastic, and aluminum recycling (Stritch & Christensen, 2016), recycling of electronic components (Manika et al., 2015), food waste recycling (Mak et al., 2018), and industrial waste recycling (Li, Zuo, Cai, & Zillante, 2018). However, it is important to note that the use of the term ‘recycling’ is an abuse of language. When a person disposes of paper or food in the appropriate container or places a plastic object in the right bin, he or she cannot be said to be engaging in recycling per se. At best, what that person is doing is contributing to one of the many stages of waste collection, sorting, and disposal. Collecting, sorting and disposing of waste are merely the preliminary stages of a much broader process involving numerous parties in a lifecycle of varying length depending on the type of product in question.

## 3.2 OUTLINING HOW EMPLOYEES BEHAVE TOWARD THE ENVIRONMENT

### 3.2.1 *Green vs Nongreen Behaviors*

An individual’s decision to work for, or to seek for work in, an organization genuinely committed to promoting ecological and environmental matters demonstrates a degree of individual awareness of environmental issues. In other words, understanding environmental behavior requires a joint consideration of the sector or industry in question, the environmental or ecological mission or intentions of the organization, and the type of position held within the organization.

#### 3.2.1.1 *Industrial Level*

An important factor to consider is whether an employee works for a company operating in a green or nongreen industry, which may sometimes take the form of a traditional industry (Ones and Dilchert 2012a). The notion of green industry refers to “those sectors that adopt cleaner production technology as well as harmless or less harmful new technology” (Hu, 2017). By contrast, the notion of nongreen industry

corresponds to “industries with large consumption of resources and heavy environmental pollution” (Wei, Yuguo, & Jiaping, 2015). A word of caution is needed here. Taken literally, both definitions may appear to suggest that businesses can be distinguished along somewhat Manichean lines, with environmentally responsible companies contrasting with environmentally careless companies.

In actual fact, the distinction between a green industry and a nongreen industry is somewhat artificial since the fact of belonging to one or the other is based on the subordination of the organization’s commercial and industrial activities to a range of environmental practices, rules and standards, such as a code of environmental ethics, environmental policy, product and process stewardship, and environmental management systems (Lober, 1996). The fact that an organization belongs to a green industry implies that it takes its duty to minimize its environmental impact seriously. Organizations in this category tend to forge commercial and industrial links with partners exhibiting, if not the same concerns, at least operational management procedures conforming, in theory, to a range of normative constraints evidenced by appropriate environmental accreditations or standards. By contrast, an organization that belongs to a nongreen industry will tend to incorporate such concerns in its commercial and activities only to a very limited extent. While this may suggest that the activities of a nongreen organization are less subject to normative regulation at an environmental level, it should not be assumed that representatives of the organization have no concern for environmental matters. Indeed, environmental certifications and standards can create their own constraints and restrictions in terms of application, access costs, and lack of necessary organizational resources (see Chapter 7).

### 3.2.1.2 *Job Level*

Similarly, a distinction is sometimes made between green and nongreen jobs. Providing a clear definition of these concepts is no easy task, contrary to what a naïve understanding of the concept of green job might suggest. In “Response to ‘Seven Myths about Green Jobs’ and ‘Green Jobs Myths,’” Pollin (2009) provides a range of explanations, underlining the difficulty of conceptualization. As Pollin notes: “we face serious problems in attempting to establish a single operational definition of the term green jobs.” For example, if a truck driver is delivering solar panels to a construction site, should that count as a “green job?” What if, the next day, the same truck driver delivers pumping equipment to an offshore

oil drilling project? Even within the project to install solar panels on rooftops, we would of course consider the electricians and roofers doing the installation as having green jobs. But what about the secretaries and accountants in the back office? (p. 3). More recently, Bowen (2012) suggested that the difficulty of defining the concept of green job can be explained by the sheer variety of approaches used by researchers, who have generally tended to adopt a sector-based approach rather than an approach focused on the job or position held. Having considered several definitions, Bowen concluded that solving an environmental problem is less ecological than preventing it. What may appear to be a tautology raises, in my view, a crucial problem for greening the workplace. Ultimately, it is not the job itself that is green but the substance of the daily actions of the individual holding that job and, by extension, the nature of their professional activities. Put differently, the characteristics associated with a job provide employees with the means to behave in environmentally responsible ways. The implication is that a distinction must be made between the job and the person holding and performing that job.

### 3.2.1.3 *Individual Level*

Does a person who has a green job really behave responsibly toward the environment? Similarly, does the fact of having a traditional job (as opposed to a green job) mean that a person is highly irresponsible? It would be misleading to infer a person's level of environmental engagement from their job. In my view, we need to think carefully about what criteria should be used to determine whether an employee is green or not green. Ciocirlan (2017) found that some employees within an organization are more concerned than others about environmental issues. Within an organization, three groups of employees coexist and can be distinguished according to the degree to which they have incorporated environmental matters as part of their professional identity. Rather like Russian dolls, the three groups overlap. The largest group includes all employees, i.e. both those with little interest in or concern for environmental matters and those with a high level of interest and concern. The group of employees with a limited interest in environmental matters should not be assumed to be a group containing nongreen employees since that would imply that they voluntarily adopt environmentally questionable behaviors (see Chapter 4). In the case of nongreen employees, environmental matters are simply not a part of their everyday habits and are not incorporated into their daily work routines.



According to Ciocirlan (2017), green employees are more likely than other employees to report a prominent, salient, and committed environmental identity (p. 54), have an intrinsic motivation to protect the environment at work (p. 55), and display similar levels of comparable environmental behaviors between home and work settings (p. 55). Among the green employee subgroup, some commit compulsively to the environment while others, though concerned with environmental matters, appear to show less interest. The degree of intensity with which employees engage in environmental issues can be used as a basis for categorizing employees into two groups: employees who exhibit high-intensity engagement and employees who exhibit low-intensity engagement. The difference is determined by the degree to which environmental concerns shape and direct an individual's actions on a daily basis. High intensity indicates that ecology and the environment are ingrained in an individual's identity. Each action is invariably shaped by environmental concerns. By contrast, in the case of low intensity, environmental concerns exist but do not systematically shape or direct individual action on a daily basis. In other words, in such situations, an individual is able to adapt to behavioral breaches that do not cause significant disruption to their identity. The usefulness of the distinction will be discussed in due course (see Chapter 8).

The green/nongreen criterion suggests that we may view the question of greening the workplace from a broader perspective. In fact, crossing (non)green job with (non)green industry and (non)green individuals creates numerous possibilities. The purpose here is not to discuss the implications arising from every possible combination. Nonetheless, it is easy to see the scale of the environmental and human challenges that a business must face if it is to become more environmentally friendly by adopting operational practices that adhere to ecological standards (e.g., production processes designed to minimize waste) and/or by adopting environmental standards (e.g., ISO 14000). Ones and Dilchert (2012a) argued that the formal requirements of a job in a green industry are more likely to encompass environmental matters when compared to traditional industries, where, more often than not, employees will simply be encouraged to behave responsibly toward the environment, a requirement not specifically referred to in their job description.

### 3.2.2 *Inclusion in the Job Task*

In itself, the idea of distinguishing a job task by considering the degree of inclusion of a particular concern (health, safety, service, etc.) is not new. What is new is the attention paid to environmental considerations. To the best of my knowledge, Ramus and Killmer (2007) were among the first to classify environmental behaviors based on the in-role/extra-role distinction. With a few rare exceptions, environmental behaviors are for the most part seen as extra-role behaviors (Francoeur et al., 2019). In other words, the implication is that their degree of inclusion in job tasks is particularly low. Put differently, employee engagement in practical pro-environmental actions and behaviors is to a large extent voluntary and driven by a deep personal belief in the importance of behaving pro-environmentally.

The most fruitful discussions in this area have taken the degree of inclusion into account by introducing the notions of “in-role” and “extra-role”. Since the pioneering study of Katz and Khan (1966), the distinction between in-role and extra-role has become well established and is now widely accepted. Ziegler and Schlett (2016) defined in-role behavior as “actions which are expected to be carried out by employees because of formal job descriptions and role assignments” (p. 2), whereas, according to Miller, Rutherford, & Kolodinsky (2008), extra-role behavior “involves the execution of acts not necessarily described in a job description” (p. 212). The distinction between in- and extra-role tasks creates a grey area: where does an in-role task end and an extra-role begin? This is not a new question. The aim is to establish what is meant in practice by a required action or behavior in a work setting. What is a required behavior? When does a behavior cease to be required? Providing a general answer to this question is no easy task. The degree of requirement is closely linked to the type of job held. A required behavior is, by nature, constraining because it directs the actions and efforts of an individual and determines what must be done within a given time and space. The difficulty of establishing exactly where formal demands and requirements begin and end may have something to do with the fact that it is sometimes difficult to clearly distinguish the job from the role to be performed (Organ, 1997). We may posit that a behavior ceases to be required when an individual is required to deliberate with themselves or others in order to facilitate the course of action related to that behavior.

Following Ramus and Killmer (2007), Bissing-Olson, Iyer, Fielding, and Zacher (2013) were among the first to consider the idea of the inclusion of tasks for empirical purposes, defining “task-related pro-environmental behavior as the extent to which employees complete their required work tasks in environmentally friendly ways” (p. 157). In their approach, the authors view task-related pro-environmental behavior as discretionary individual behaviors. This nuance is important. Unlike the related literature relating to job performance and, more specifically, to minimum expected efficiency in task performance (Motowidlo, 2003), employees cannot really be sanctioned if they fail to consider or largely neglect environmental concerns in their daily tasks. In addition, Bissing-Olson et al. (2013) proposed that “[t]ask-related pro-environmental behavior takes place within the context of employees’ required core work tasks, whereas proactive pro-environmental behavior moves outside these narrow parameters and involves a more active, change-oriented, and self-starting approach to environmental issues in the workplace” (p. 158). Ultimately, what this suggests is that, even in workplace settings, environmental concerns remain confined to the individual level from the point of view of intentionality and that they cannot be explicitly included within the sphere of required behaviors, implying that the effectiveness of environmental concerns ultimately lies in their degree of routinization in work tasks.

More recently, Shen, Dumon, and Deng (2018) defined nongreen task performance as “nongreen behavior-related tasks that are required within a job role, which are essential employee workplace behaviors that contribute to improving organizational efficiencies and effectiveness” (p. 597). Here, such behaviors are viewed as not falling under the category of green behaviors, which is very different from treating them as nongreen behaviors. Here, the term “nongreen” is misleading since it appears to suggest that the behaviors examined in their study relate to behaviors that fall under the category of nongreen individual actions, whereas the aim was to examine behaviors that clearly refer to in-role and extra-role behaviors in the form of organizational citizenship behavior and intention to quit the organization.

A study by Francoeur et al. (2019) on the operationalization of environmental behaviors established that, for the most part, the studies conducted in this area between 1977 and 2018 focus on extra-role environmental behaviors, while those examining intra-role behaviors account for a much smaller proportion (4.5%). On this point, the findings

concerning methodological efforts are consistent with those reported in conceptual literature reviews (e.g., Ciocirlan, 2017; Norton et al., 2015; Ones & Dilchert, 2012a).

### 3.2.3 *Direct vs Indirect Environmentally Friendly Behaviors in the Workplace*

To the best of my knowledge, the distinction between direct and indirect behaviors was first introduced by Homburg and Stolberg (2006). An environmentally friendly behavior is defined as direct when an individual engages personally in pro-environmental behavior by taking practical action to contribute to waste avoidance, pollution reduction, and the minimization of excessive resource use. By contrast, an environmentally friendly behavior is defined as indirect when an individual engages in actions designed to encourage members of their organization to understand environmental issues with a view to them adopting responsible behaviors. In that sense, indirect environmental behaviors may be seen as a means to an end.

Indirect environmental behaviors can act as drivers of direct pro-environmental or anti-environmental behaviors. It seems reasonable to suggest that encouragements made by an employee with high environmental awareness may cause colleagues with little interest in environmental matters to gradually alter their day-to-day environmental habits. Equally, the support provided by an employee recognized for their know-how in the form of a symbolic recognition of environmental efforts made may, by extension, encourage other colleagues to engage in environmentally responsible behaviors through a mimetic effect. Environmentally concerned employees can also educate and train colleagues open to learning about simple environmental practices and habits. It seems realistic to envisage that environmental employee voice behaviors can contribute to the dissemination of environmental ideas by triggering a new awareness that has the potential to promote the emergence of an environmental culture in the workplace that is conducive to the adoption of direct environmental behaviors.

### 3.2.4 *Further Considerations*

The first consideration is the degree to which employees are capable of differentiating between different behaviors. The question may seem

trivial, but it was given serious consideration in a January 2008 report by the Department for Environment, Food and Rural Affairs (Defra), as the following excerpt makes clear: “The Defra scoping report set out the early development of a segmentation model, which is a critical tool in the framework for influencing behaviour. As has already been intimated, different people act (or not) for different reasons; a motivation for one may well be a barrier for another” (p. 40). The report focuses mainly on environmental behaviors performed outside organizational settings. Yet this line of thinking is also relevant to the study of environmental behaviors in organizational settings. Understanding whether employees view environmental actions and behaviors as a whole or are capable of making clear distinctions between different behaviors is important from an academic point of view, but also matters for practical reasons—not least because the question serves to extend thinking on the levers of organizational and managerial action designed to encourage employee environmental engagement. Several empirical studies have shown that employees distinguish clearly between different environmental behaviors, whether these relate to direct behaviors such as recycling and energy saving (Gregory-Smith, Wells, Manika, & Graham, 2015) or indirect behaviors such as environmental helping, environmental civic mindedness, or individual initiatives (Boiral & Paillé, 2012).

Lastly, one final point is the broader question of the degree to which environmental behaviors overlap or are interconnected. The behavioral sequence refuse → reduce → reuse → recycle situates pro-environmental behaviors in relation to each other based on their degree of environmental impact. The sequence is itself part of a broader sequence involving nine stages and goes beyond the strict confines of individual actions and behaviors in the workplace (on this subject, see a 2017 study by Kirchherr, Reike and Hekkert in which the authors examined definitions of the notion of “circular economy”). In theory, while refusing to consume resources to minimize the carbon footprint may be the most pro-environmental behavior (as rightly noted by Ones and Dilchert), recycling is the least environmentally friendly action since it requires the use of additional energy resources to complete the treatment process. In a workplace setting, and strictly from an employee point of view, refuse behavior is nonetheless difficult to mobilize. Furthermore, a lack of consideration for the waste generated by daily work activities is simply inconceivable for reasons of health, safety, and hygiene in shared spaces within an organization. Refuse behavior is one possible option under

certain conditions. It may take a specific form whereby employees limit excessive resource use as far as they can, exhibited in the form of reduction behavior. Reduce can take different forms and may also involve different purposes through targeted behaviors. Energy consumption reduction can be achieved through specific actions such as turning off lights when leaving the office or when not needed, using double-sided printed or photocopied documents, turning off computer monitors when not in use, and the use of video conferencing rather than traveling to meetings (Dixon, Deline, McComas, Chambliss, & Hoffmann, 2015; Greaves, Zibarras, & Stride, 2013; Lamm et al., 2013). Waste reduction is another possible reduction strategy (Tudor, Barr, & Gilg, 2008). For example, employees can be encouraged to bring their own mug to work to avoid using a new Styrofoam cup when they drink coffee.

### 3.3 EMPLOYEE GREEN BEHAVIORS AND THEIR OPERATIONALIZATION

#### 3.3.1 *Overview*

Considerable efforts have been made in recent years to operationalize environmental behaviors. A study by Francoeur et al. (2019) based on a systematic literature review provides an illuminating insight into the choices made over the years in this area. Their study is based on a sample of 53 papers published between 1977 and 2019.<sup>1</sup> According to Francoeur et al. (2019):

- 46 of the 53 papers (87%) are based on a quantitative approach (using Likert-type measurement scales);
- 7 of the 53 papers (13%) used a qualitative approach (i.e. experimentation and/or direct observations).

Francoeur et al. (2019) showed that the operationalization of pro-environmental behaviors is largely dominated by quantitative approaches involving, for the most part, the use of measurement scales. Fewer studies on pro-environmental behaviors have been conducted from a global or

<sup>1</sup>See Francoeur et al. (2019) for methodological details.

comprehensive perspective. In what follows, I provide a brief description of these different options.

### 3.3.2 *Quantitative Approaches*

The term “quantitative approach” is understood to mean the use of data acquisition methods allowing for analysis based on measurement operations (mean, standard deviation, etc.). Based on Francoeur et al. (2019), two indications of interest are worth noting here. First of all, the first measurement scale used in an organizational context for research on environmental behaviors appeared in 1994 in a paper by Lee and De Young. Second, 22 measurement scales were published between 1994 and 2019, giving a total of 170 items. The items are distributed as follows:

- 60% relate to direct behaviors;
- Measurement typically focuses on extra-role rather than in-role behaviors;
- Conserving behaviors are mostly operationalized (47.65%);
- New subcategories have emerged, including (a) performing sustainable daily work, (b) environmental civic mindedness, and (c) environmental voice behavior.

The list of available items is particularly long, suggesting the need for a considered assessment. The aim is to drastically reduce the redundancies between different scales so as to ensure that future studies use a more consistent approach for operationalizing pro-environmental behaviors in the workplace.

By way of example, I propose to extract items referring to the category “reuse”.<sup>2</sup> Several comments can be made about the resulting list. Reuse as a behavior is included in 7 different measurement scales, giving 12 items in total. Three topics are addressed. They are:

Container reuse:

- Use reusable bottles or cups for beverages (Stritch & Christensen, 2016).

<sup>2</sup>Readers interested in all the scales and how items are distributed according to the category to which they belong are referred to Francoeur et al. (2019).

- I am a person who uses a reusable water bottle instead of a paper cup at the water cooler or faucet (Lamm et al., 2013).
- I am a person who uses a reusable coffee cup instead of a paper cup (Lamm et al., 2013).
- I use my own cup instead of disposable ones (Chou, 2014).
- I use a mug for drinking coffee/tea (Blok, Wesselink, Studynka, & Kemp, 2015).
- Using personal cups instead of disposable cups (Kim, Kim, Han, Jackson, & Ployhart, 2017).
- I take a new plastic/carton cup each time I have coffee or tea (reverse) (Blok et al., 2015).

The use of reusable utensils:

- I bring reusable eating utensils to work (e.g., travel coffee mug, water bottle, reusable containers, reusable cutlery) (Robertson & Barling, 2013).
- I carry my own chopsticks instead of using disposable ones (Chou, 2014).

Paper reuse:

- I am a person who uses scrap paper for notes instead of fresh paper (Lamm et al., 2013).
- Reusing papers to take notes in the office (Kim et al., 2017).
- Use the unused side of paper for notes, messages, and copies (Lee & Young, 1994).

These items involve unique scenarios. It is clear from the above that the emphasis is primarily on container reuse. The focus here is implicitly on reducing the use of single-use containers such as plastic and paper cups for water and hot drinks. Finally, very little consideration is given to paper reuse behavior in a work context—a surprising fact when considering, for example, the number of items in measurement scales that involve paper recycling in one form or another (more than 10 items distributed across 7 scales between 1994 and 2016).



### 3.3.3 *Case Study*

Dumitru et al. (2016) used the case study approach in order, on the one hand, to examine the factors that affect energy use in work-related behavior and, on the other, to understand the motivational bases driving employees to behave pro-environmentally. Two case studies were carried out (one in a Spanish university and another in an Italian energy company). The case study method allows observers to access a wide range of data related to the subject under study. Dumitru et al. analyzed and compared data obtained from multiple sources, including websites, brochures, promotional and advertising flyers, organization charts, environmental and social reports, and codes of ethics, supplemented by a series of in-depth interviews of key informers (high-level management staff in relevant positions). The case study approach provides a broader and more detailed understanding of the phenomenon under study made possible by a detailed analysis of the studied context, but also imposes many constraints on researchers. Case study research is, by its very nature, contingent, considerably limiting the potential for replicating the study and for generalizing the results.

### 3.3.4 *Experimental Design*

Several studies in this area have used an experimental design approach in varying forms. In this type of approach, one of the preferred practices involves using one or more scenarios. The underlying principle involves presenting subjects with hypothetical scenarios controlled by the researcher. The advantage of experimental design is that scenarios can be manipulated in order to refine the basis of the analysis. A good example is Bohlmann, van den Bosch, and Zacher (2018), who used this method to determine the extent to which employees in managerial positions tend to incorporate environmental behaviors alongside other traditional behaviors (mutual support, deviant behaviors) as a general criterion for assessing their subordinates' overall performance. The main details of the experimental apparatus are as follows. Scenarios combining several behavioral statements referring to individual behaviors were developed. The scenarios were presented to the study participants, who were then asked to grade them. The main results were as follows. Like any methodological apparatus, an experimental study provides benefits but also suffers from various shortcomings. The main benefit is that, in experimental research,

the observed effect can be isolated by neutralizing the contextual contingencies that typically affect field studies. The flipside of that benefit is that, by its very nature, experimentation implies an artificial context which, regardless of its heuristic value, limits the practical scope and significance of observation.

### 3.3.5 *Situated Experiment*

Gregory-Smith et al. (2015) tested two environmental social marketing interventions on several types of behaviors (recycling, printing, and heating/cooling). To do so, the authors used a situated experimental approach. The intervention was designed to raise employee awareness of the value of adopting a responsible attitude toward the use of paper and air conditioning. The awareness-raising process involved using both general visual communication (i.e., posters) and direct personalized communication (i.e., email). Measurements of pro-environmental attitudes and behaviors pre- and post-intervention were performed. The situated experimentation method broadly involves transferring the general principles of laboratory experimentation to a real-world setting (i.e., a British City Council). The advantage of this approach is that it avoids the objections commonly leveled against out-of-context experimental approaches, which have been criticized primarily for the artificiality of the resulting observations and the difficulty of generalizing the results. Gregory-Smith et al. (2015) acknowledged various limitations largely related to the fact that some of their data were second-hand, making it impossible to establish the effectiveness of the intervention on certain aspects (in particular, no measurement was performed prior to the intervention on employees' attitudes toward environmentally friendly behavior in the workplace).

### 3.3.6 *Mixed Methods*

Researchers opting to use qualitative approaches generally tend to combine several different methods. A good example is the study conducted by Humphrey, Bord, Hammond, and Mann (1977) on employees' environmentally sustainable behavior in the context of resource conservation (i.e., manual separation of wastepaper in offices). The study combined direct observation of individual behaviors with quantitative measures. Another example is the study by Scherbaum, Popovich,

and Finlinson (2008) on energy-saving behaviors in the workplace, in which the authors combined the focus group technique and the questionnaire method. Using several techniques enables researchers to draw on the benefits associated with each method used, but also introduces a degree of constraint in terms of the extraction and analysis of raw data and the interpretation of results obtained from different sources.

### **Some concluding remarks**

The scope of this chapter was limited to presenting various key aspects of the core focus of this book, such as key definitions, the main structuring characteristics, and the different modes of operationalization. Judging by the number of papers published on the subject in the last decade, the question of environmental behaviors is a thriving area of research. Drawing on the above, employees may be said to behave in eco-friendly ways in the workplace when they engage in conscious, discrete, voluntary, (in)direct and intentional actions with the explicit goal of protecting the environment or of harming it as little as possible. Behaviors that potentially detract from environmental matters also need to be considered. This is the topic of the next chapter.

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