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*SPREADING ENVIRONMENTAL SUSTAINABILITY THROUGH THE WORKPLACE:
A Multi-Methodological Study about the interaction between environmental policies, social norms
and employees' environmental identity*

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Abstract

In the middle of an ages-long environmental crisis, international political agendas are still striving to regain control through prospective environmental goals to reduce human-caused environmental disasters. In the meantime, the political objectives set in the past have not always been successfully achieved (Rosen, 2015), due to the human resistance to the prioritization of a transformative sustainable shift (Ulus and Hatipoglu, 2016). The occasional mismatch among societal premises, promises and factual solutions raises doubts about the effectiveness of international and national environmental programmes in avoiding the worst-case scenarios predictions. However, the social and governmental pressures over time against the unsustainability of corporate frantic production systems resulted in any case into a growing need for environmental policies' adoption in firms (Ramus, 2003; Hawken, 1993). Proactive companies have even started anticipating environmental regulation implementing eco-innovations to gain legitimacy or competitive advantage. This dynamic increased the environmental corporate identity, affecting employees' personal values in a way that has not received enough attention in the literature (Ciocirlan, 2016).

This manuscript addresses this gap to explore and test the interaction between the environmental corporate culture and the employee's personal culture in the Italian corporate context. The leading research question that drives this study is whether a green and eco-innovative workplace is able to instil or make salient environmental personal beliefs and behaviours in employees, producing spill-over effects in their private life. To answer this question, this study uses a qualitative and quantitative approach, drawing from multidisciplinary literature. The multi-methodology of this research consists in: 1) a qualitative step that explores the workplace and private environmental cultures of 29 interviews with employees working in eco-innovative firms; 2) the development of a conditional analysis model from 271 complete answers to a longitudinal survey, to test associations identified in the qualitative step; 3) a quantitative and qualitative content analysis on 3 Sustainability Reports, to provide insights about how environmental policies are implemented in different types of Italian companies.

The results give evidence of the influential effects that green workplaces have on the personal culture of employees, via the stimulation of environmental commitment empowered by a sense of identification with the organizational values. Moreover, they also suggest that different environmental corporate cultures can result into different ways of implementing of environmental policies.

These findings implicate a need to increase the attention of policymakers on the intangible power of environmental policies aimed at making the workplaces fair and sustainable environments to support the environmental transition of society.

Italian translation

Nel mezzo di una crisi ambientale che va avanti da decenni, le agende politiche internazionali stanno ancora cercando di riprendere il controllo attraverso obiettivi ambientali futuri, per ridurre i disastri ambientali causati dagli esseri umani. Nel frattempo, gli obiettivi politici del passato non sono sempre stati raggiunti (Rosen, 2015), a causa della resistenza umana nei confronti del cambiamento verso una società sostenibile (Ulus e Hatipoglu, 2016). Il sovente disallineamento tra premesse, promesse e soluzioni fattuali nella società solleva dubbi sull'effettiva capacità dei programmi ambientali, nazionali e internazionali, di evitare i futuri scenari ambientali più disastrosi. Ad ogni modo, nel tempo le pressioni sociali e governative contro l'insostenibilità dei sistemi produttivi sono risultate in una crescente esigenza, da parte delle imprese, di adottare politiche ambientali (Ramus, 2003; Hawken, 1993). Le aziende proattive hanno anche anticipato i regolamenti ambientali implementando eco-innovazioni per acquisire legittimità o vantaggio competitivo. Questa dinamica ha aumentato l'identità ambientale organizzativa, avendo effetto anche sui valori personali dei dipendenti in un modo che non ha ricevuto abbastanza attenzione nella letteratura (Ciocirlan, 2016). Questo manoscritto parte da questa lacuna in letteratura, ambendo ad esplorare e testare l'interazione tra la cultura ambientale organizzativa e la cultura personale dei dipendenti nel contesto italiano.

La domanda di ricerca che guida questo studio è se un ambiente di lavoro innovativo e pro-ambientale sia in grado di instillare o rendere saliente credenze e comportamenti pro-ambientali nei dipendenti a livello personale, producendo ripercussioni nella loro vita privata. Per rispondere a questa domanda, questo studio usa un approccio qualitativo e quantitativo, prendendo spunto da una letteratura multidisciplinare. La multi-metodologia di questa ricerca consiste in: 1) uno step qualitativo che esplora la cultura ambientale, sia nel posto di lavoro che nella vita dei dipendenti che lavorano in imprese eco-innovative; 2) lo sviluppo di un modello di analisi condizionale da una survey longitudinale di 271 risposte complete, per testare le associazioni identificate nella parte qualitativa; 3) una analisi quantitativa e qualitativa del contenuto di tre report di sostenibilità, per fornire intuizioni su come le politiche ambientali sono implementate in tipi differenti di imprese italiane.

I risultati danno prova dell'influenza che un ambiente di lavoro percepito come "green" ha sulla cultura personale dei dipendenti, attraverso la stimolazione dell'impegno verso l'ambiente, potenziato da un senso di identificazione coi valori dell'impresa. Inoltre, essi suggeriscono che diverse culture ambientali aziendali possono produrre diversi modi di implementare le politiche ambientali.

Queste conclusioni implicano la necessità di aumentare l'attenzione delle autorità competenti sul potere intangibile delle politiche ambientali, per rendere il posto di lavoro un luogo dove viga il rispetto del prossimo e dell'ambiente, in modo da supportare la transizione della società verso la sostenibilità.

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List of abbreviations

CMC	Computer-mediated Communication
CSR	Corporate Social Responsibility
EAP	Environment Action Program
EC	European Commission
EGD	European Green Deal
EU	European Union
GHG	Greenhouse Gas
HR	Human Resources
NEP	New Environmental Paradigm
PEB	Pro-environmental behaviour
R&D	Research and Development
SDG	Sustainable Development Goals
SDT	Self-Determination Theory
SET	Social Exchange Theory
SR	Sustainability report
TNC	Theory of Normative Conduct
TPB	Theory of Planned Behaviour

1. Introduction

“[...] I have never thrown any paper on the ground [...]but the awareness of choosing a product rather than another started when I started working here because, when I stepped in, I started to see all the processes that were behind the products’ realizations: I started to think to the complexity of making, for example, a can of coke, a spray bottle... there is a complexity on which we can work to decrease impact, so the behavioural awareness arrived in those moments, thanks to the job [...].” - Unedited statement from a participant in this study.

In the current historical period of human-caused environmental disasters, policymakers are struggling to find solutions to the environmental crisis. According to the report “The European environment – state and outlook 2020, Knowledge for transition to a sustainable Europe” (“SOER 2020”, EEA, 2020), one of the most important environmental and sustainability challenges in Europe is the full implementation of already existing measures and the development of new environmental policies to guarantee the achievement of its environmental goals up to 2030.

The challenge of environmental policy implementation is exacerbated by the failure of several past global efforts, being the Kyoto Protocol an emblematic and dramatic example. It was imposed in 1998 with the objective of reducing greenhouse the 20% of Greenhouse Gas (GHG) emissions for each member state, in the period that went from 2008 to 2012, but its achievement never occurred (Rosen, 2015). This created a sense of disillusionment towards environmental political moves, and the need to reflect on the resistance to the sustainable shift that needs to be achieved for avoiding worst-case scenarios (Ulus and Hatipoglu, 2016).

Environmental and sustainability challenges are, however, interdependent with economic activities and lifestyles, therefore very complex to address. This complexity needs to be tackled via a transformational and transversal change towards a more developed, just, and pro-environmental society, nowadays an undelayable priority¹.

¹ <https://resources.unsdsn.org/implementing-the-european-green-deal-through-transformational-change>

Since firms are still the main cause of environmental problems, they should play a large role in the green transition (Bebbington, 2001; Ragas et al, 2017; Ghouri et al, 2019), by transforming polluting production systems, supply chains and business models into sustainable alternatives. International institutions such as European Union are striving to create more stringent environmental laws supporting this transformation, li

Firms are not only the entities that provide products and services, but also workplaces; they can be seen as physical and metaphorical places where people spend much of their life, allowing important moments of discussion and education for personal and societal development. The green transition of companies would not only serve as a means to achieve political agenda's goals but also, by product, to corroborate the idea that the environmental shift is a responsibility of all human beings, catalysing the absorption of green culture in employees as individuals. This is a paramount issue from a social preparedness and environmental transition perspective. Following Marescotti (2015), today's adults are only marginally involved in an undelayable cultural revolution in favour of environmental sustainability. Nonetheless, adults are the main targets of production and consumption, political decisions, and technological and scientific orientations, and for this reason they can be considered both beneficiaries and creators (Marescotti, 2015) of environmental "services" (Knight, 2021).

Although it is well recognised that the workplace has a strong influence on employees (Kuenzi and Schminke, 2009) as individuals, literature mostly focuses on workplaces' negative effects on stress and psychological issues (Debrot et al. 2018;) or on the opposite array of influences, namely the adoption or extension of the domestic environmental behaviour at work (Smith and O'Sullivan, 2012; Ciocirlan, 2019). The theoretical links between corporate culture and personal development are few and relatively unexplored, most of all when it comes to environmental sustainability. Since one of the objectives of the EU's environmental policies is to maximise the environmental and social value creation of businesses (EFRAG, 2021), this research gains importance to mind the literature gap identified. In fact, according to Rupp and Mallory (2015), employees are an important stakeholder group and their reactions to the organization's environmental efforts are key elements to assess the social good generated by organizational sustainable initiatives. Moreover, there is a growing belief that the moral concerns of employees are affected by the moral actions of the firms (Lin et al., 2010).

To mind this gap in the literature, this manuscript aims at investigating the effects which the environmental culture that permeates the workplace has on the environmental culture of employees. The leading hypothesis is that in a green workplace, people are more likely to absorb environmental culture and identity at a personal level, since environmental identity is essential to motivate a change in intentions towards sustained environmental practice (Kempton and Holland, 2003). Understanding whether a sustainable workplace has the potential to increase environmental knowledge and concern in employees through multi-vector educational processes would endorse a decisive political move towards the environmental reformation of the current work system.

This main goal is divided into three subobjectives, which are:

- a) exploring the interrelation between corporate environmental culture and employees' personal environmental culture, in order to understand whether the workplace has a role in developing an ecological identity;
- b) identifying the personal, policy and social drivers of environmental commitment in the workplace, in order to have clear guidance for policy intervention;
- c) investigating how those drivers communicate with the forthcoming international environmental policies, to understand both how firms respond to those policies and whether they are ready to implement them.

To achieve all objectives, the methodology used has a triple line: a qualitative approach (interviews of employees) for the first objective, a quantitative methodology (survey) for the second one, and a content analysis for the third objective. Further details will follow.

1.1 Structure of the manuscript

This book uses multidisciplinary literature to set the stage for qualitative and quantitative investigation of the extent to which organizational environmental culture perceived by employees is effective in motivating them to develop or foster environmental identity, increasing the sustainability culture of employees not only in the workplace, but also outside that context through spill-over effects. Therefore, the study identifies relevant organizational, social, and cultural factors, testing their effectiveness at inspiring employees' environmental intentions, concerns, and behaviours.

The research assumes that the transition towards environmental sustainability of societies goes through the ability of firms to implement effective environmental policies that activate social and individual absorption of environmental culture. This assumption has four components:

- 1) The assertion that the ecological sustainability of firms is co-influenced by external social and regulatory pressures and internal features, two forces that shape firm's strategy and decision making. The resulting shared environmental corporate culture is corroborated by internal environmental policies or other structural considerations. This assertion is supported by organizational and institutional research demonstrating that higher organizational environmental performance depends on the implementation of environmental strategy, policies and disclosure (Ntim and Soobaroyen, 2013; Haque and Ntim, 2018; Freedman and Jaggi, 2011; Rankin et al., 2011; Russo, 2009).
- 2) The assertion that this culture is perceived by employees and has an effect on their environmental identity, causing a change in their priorities and behaviours. It is highlighted by the organizational and behavioural literature (Schudson, 1989; Cialdini et al., 1990; Tajfel and Turner, 1979; Norton et al., 2014).
- 3) The assertion that this identity change happens through commitment and identification with the issue and with the workplace environmental concern, shown by socio-psychological and

organizational literature (Sharma, 2000, Davis et al., 2009; Rusbult et al., 1980; Le and Agnew, 2003).

- 4) The assertion that identity engagement leads to spill-over effects that allow replication environmental choices also outside the work environment, suggested by work environmental literature (Thøgersen and Crompton, 2009; Truelove et al., 2014; Hicklenton et al., 2019).

Building on these assertions, this study develops into six chapters. Chapter 1 is the current introductory chapter. In chapter 2 the literature relevant to this work will be discussed. It is composed of three parts. In the first part, regulatory pressures that pushed firms to engage in environmental issues will be outlined. In the second part of Chapter 2, environmental culture and identity will be defined. In the third part of Chapter 2, socio-psychological and behavioural theories that intervene in the development of environmental culture and identity will be listed and explained, to have a theoretical basis for the understanding of the set of methodologies used. Chapter 3 displays the qualitative step of this study, that builds on the literature to perform an in-depth analysis of interviews to a sample of 29 respondents and seeks testimony of environmental culture in and through the workplace. The qualitative step has been used to develop a survey instrument to test the associations arisen via a conditional analysis model, which is explained in chapter 4. Chapter 5 provides a qualitative and quantitative content analysis of three Sustainability Reports (SRs), drafted by three firms participating to the qualitative step, to study one of the outcomes of the current implementation of international regulatory requirements, allowing considerations over the effects of these pressures over the environmental culture of firms. Chapter 6 draws final conclusions and further research implications. This research considers Italian case studies to neutralize as much as possible the cultural differences that may arise from data belonging to different nations.

2. Literature review: Environmental policies, theories, and social dynamics in the corporate landscape

2.1 Introduction to the literature review

This literature review draws from several research areas and schools of thought in order to provide a general overview of what is considered relevant when studying the environmental culture diffusion phenomenon. It is a kaleidoscopic matter that needs to be tackled from several perspectives, where many elements coexist and co-influence each other. This chapter aims at outlining the historical excursus preceding the research and the state-of-the-art of the environmental sustainability in the workplaces.

To do so, there are several interactive levels of understanding that require attention. The first level is merely factual: it refers to real facts concerning what environmental sustainability is, how and when the concept developed across the European Union, how it affected societies. The second level is contextual: since this research is focused on the workplace setting, studies about environmental sustainability specifically focused on workplace dynamics have been taken into account. The third level is theoretical: being the identity definition and the diffusion of culture a matter of interaction, social, behavioural and psychological theories are needed for understanding how environmental culture and identities spread. Given this tripartition, the literature has been organized in three parts. In part one, the external regulatory pressures of European Union over environmental performance and management of firms will be provided. More specifically, this part determines that the regulatory pressures increased over time and that firms have been already subject to raise the standards of their environmental performance. This resulted into higher engagement of European firms in tackling environmental issues with diverse tools (policies, investments, strategies). The chapter follows the logic that these tools led to organizational changes, witnessed by the emergence of new organizational trends that include environmental concern into culture and identity of organizations. Therefore, in part two of this chapter environmental culture and identity will be first defined at a general psycho-sociological level and then at a more specific organizational level to understand the possible interactions with the personal culture of employees. Part three displays, consequently, the possible patterns of diffusion of this culture, drawing from psychological, sociological, and organizational theories.

This literature review will serve as theoretical basis to understand and justify the development of the multi-methodological research of this manuscript.

2.2 Part one: The emergence of environmental engagement in firms

Firms developed their environmental engagement as a result of external pressures. These pressures have been regulatory, economic, and societal, and resulted into a firms' impetus to engage in protecting the environment through the creation of environmental policies and the acquisition of environmental responsibility (Ramus, 2003).

2.2.1 *Historical background*

From an historical perspective, the environmental movement gained reputation in the public arena in the 1960s thanks to the contribution of several environmental activists and experts all over the world. An example was provided by the Club of Rome, a group of academics, with the development of a model witnessing the unsustainability of the economic growth, provided by the book "Limits to Growth – a Report of the Club of Rome" (Meadows et al., 1972). The public debate that arose increased public awareness over environmental destruction derived from the frantic production systems. Several attempts to tackle the environmental problem have been addressed since then, with both positive and negative perspectives over the ability of humans to create a non-abusive relationship with nature (Ramus, 2003). However, the shared belief that businesses need to transform in order to preserve the natural environment was well-established, until nowadays. The growing public awareness motivated public opinion to exert a pressure on companies to respect environment and human health, that resulted into political intervention by governmental legislation to address the public concern (Rappaport and Dillon, 1991).

International and supranational governmental entities, such as United Nations or European Union, started including in their political agendas the need for finding solutions against environmental crisis. The first global explicit recognition of this need is associated to the United Nations Conference on the Human Environment, that took place in Stockholm in 1972. After that moment, governments all over the developed world started to implement environmental regulatory policies and to create environmental agencies, ministries or secretariats (Brundtland 1987; Shrivastava and Hart, 1994; Gladwin, 1977). For instance, in 1984 the World Commission on Environment and Development was formed and resulted into the publication of the famous report *Our Common Future*, also known as *The Brundtland Report* (Brundtland, 1987). The Brundtland Report gave birth to the definition of Sustainable Development.

Another historical milestone of the global recognition of the environmental movement was the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in 1992, which established the decisive role of corporations in solving ecological issues.

After twenty years, environmental crisis showed no signs of slowing. For this reason, governments, with the Rio+20 Conference on Sustainable Development in 2012, developed a system of Sustainable Development Goals (SDGs) to guide the global cooperation towards the sustainable transitions. In 2015, the Agenda2030, containing 17 SDGs, was internationally adopted to “eradicate poverty and achieve sustainable development by 2030 world-wide, ensuring that no one is left behind”². The SDGs are summarised in fig. 1.



Figure 1. SDGs. Source: UN website. <https://www.un.org/en/sustainable-development-goals>

2.2.2 A focus on Europe

At a European level, environmental policy is presented in strategies and administration plans since early 1970s, formulated into environment action programmes (EAPs).

The action programmes published and implemented since then are:

1st – Programme of Action of the European Communities on the Environment (1973-1976)

² http://ec.europa.eu/environment/sustainable-development/SDGs/index_en.htm

2nd – European Community Action Programme on the Environment (1977-1981)

3rd – Action Programme of the European Communities on the Environment (1982-1986)

4th – EEC Fourth Environmental Action Programme (1987-1992)

5th – Community programme of policy and action in relation to the environment and sustainable development (1993-2000)

6th – the Sixth Community Environment Action Programme (2002-2012)

7th – the Seventh Environment Action Programme (2014-2020)

The 8th and last EAP entered into force on 2 May 2022 (EU decision 2022/591/EU. EU, 2022) and will lead European environmental policy until 2030. In the text of the decision, clear reference to the need for systemic solutions has been made. As stated by the text, “Systemic change entails a fundamental, transformative and cross-cutting form of change that implies major shifts and reorientation in system goals, incentives, technologies, social practices and norms, as well as in knowledge systems and governance approaches.” (EU decision 2022/591/EU. EU, 2022: (4)).

The last EAP intends to support the accomplishment of the objectives set by a European environmental strategy presented on 11 December 2019: the European Green Deal (EGD, fig. 2). The EGD is a growth strategy that aims at transforming the European Union (EU) into a “modern, resource-efficient and competitive economy” (European Commission, 2020) and it is a crucial element of the EU’s plan to achieve Agenda 2030 (Fetting, 2020). It focuses on eight key areas that are:

- 1) Climate;
- 2) Clean energy supply;
- 3) Industry and circular economy;
- 4) Energy-efficient infrastructures;
- 5) Pollutants and toxicity;
- 6) Ecosystems and biodiversity;
- 7) Food system;
- 8) Sustainable and smart mobility.

For its implementation, a set of regulations, standards, laws and directed will be revised or created from scratch and will have direct effects on European firms. Examples of the regulatory trends include the Large Combustion Plant Directive (Directive 2006/105/EC),



Figure 2. European Green Deal. Source: <https://euinasean.eu/eu-green-deal/>

aimed at acid rain reduction; the Industrial Emissions Directive (Directive 2010/75/EU); the Environmental Quality Standards for Water Directive (2008/105/EC)³. According to the European Environmental Agency report on the European Environment (EEA, 2015), in the last 50 years environmental policies have had success and counts more than 500 directives, regulations and decisions aimed at environmental protection.

2.2.3 Firms response to environmental pressures

From an industrial perspective, environmental regulations are only one kind of several pressures to which firms have been (and are) exposed to. According to Fischer and Schot (1993), firms are generally subject to four kinds of pressures: the already mentioned regulatory, credibility, market and financial. These pressures lead to corresponding transformations of industrial trends. In the case of environmental lobbying, companies have been increasing the integration of environmental management in their business processes (Ramus, 2003; Hawken, 1993). An environmental trend in firms started to take place, not only to tackle the credibility threats to which they were subject, but also to respond to an expanding market segment of environmentally oriented consumers (Steger, 1993). Many European companies started investing in strategies for attracting green consumers (Ramus, 2003). In other words, the growing interest towards environmental issues resulted into company environmental protection activities. Companies had to accept their responsibilities for pollution and to include the management of these responsibilities into their activities, to show active efforts to address environmental concern coherently (Wolff et al, 2018). Corporate Social Responsibility (CSR) refers indeed to “context-specific organizational actions and policies that take into account stakeholders' expectations and the triple bottom line of economic, social, and environmental performance” (Aguinis and Glavas, 2012: 942).

The companies' responses to the environmental pressures since the rise of the environmental movement have been diverse. According to Ramus (2003), from 1970 to 1985 environmental improvements were performed only to comply with governmental regulations. At that time, only few large companies included formal environmental policy statements (Gladwin and Welles, 1976). After 1985, environmental management started to become more relevant, leading to consider environmentalism as a social responsibility (Hoffmann, 1997). At the end of 1980s, firms were incorporating environmental considerations into company policies that included health, safety and environmental programs such as emissions or performance targets (Ramus, 2003). Following the 1992 United Nations Conference, the environmental assessment started to become more salient. Environmental audits, criteria and impact assessments started to be incorporated into the environmental planning and decision making (Fischer and Schot, 1993). It was in this period that an

³ Source: https://www.ab.gov.tr/files/SEPB/cevrefaslidokumanlar/acquis_list_dg_env.pdf

ever-growing number of firms began to include environmental protection into policy and operations. Moreover, after that period, proactive firms decided to use environmental sustainability as a strategic tool to grab the opportunity of the competitive advantage, anticipating regulations and operationalizing environmental protection by inserting the concept into their core business objective and internal policies (Post and Altman, 1992; Ramus, 2003). In other words, companies started with differentiating themselves from others by producing sustainable versions of products with sustainable technologies, using *eco-innovation* as a strategy rather than a mere compliance with ecological governmental requirements. Eco-innovations are an important element for this study and are defined as “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations” (OECD and Eurostat, 2005: 46). The importance of eco-innovations has three main components: first, they are seen as key contributors to the sustainable transition of economic system (Davis, 1991; Vieira and Radonjič, 2020); secondly, they are indicators of companies’ proactivity towards environmental issues (Ramus, 2003); finally, they play a central role in stimulating the employee environmental innovative behaviours in firms (Ramus, 2003).

To summarize, this historical excursus shows that environmental external pressures have increased over the last decades and have been internalised by firms into corporate philosophies and activities in different ways. Many organizations have introduced or changed policies, processes, or products to address the environmental issues (Crane, 2000). These changes have direct and indirect impact not only on environmental performance of firms, but also on workers daily activities and this may interact with employees’ worldviews on environmental issues (Hedlund-de Witt, 2013; Horlings, 2015).

The part two will draw from organizational literature to explain the patterns of diffusion of environmental culture and identity that take place in firms at an employee level. Before doing so, psycho-sociological and organizational definitions of environmental culture and identity will be provided in the following section.

2.3 Part two: Environmental culture and identity, from sociology to organizational theory

In her article “The inner dimension of sustainability: personal and cultural values” (Horlings, 2015), professor L. G. Horlings reflects on the complexity of sustainability culture and its transformation, that concerns both personal values and collective cultural values. She encourages, to realize the transformation of the society towards sustainability, a value-oriented approach with the aim of creating a dialogue among actors on sustainability, based on joint motivational, symbolic, and

cultural values directed to the common good (Horlings, 2015: 167). In accordance with Schwartz (1992), value is “a desirable trans-situational goal varying in importance, which serves as a guiding principle in the life of a person or other social entity” (1992: 21). From this point of view, the study of the workplace as a site of transformation – or diffusion – of sustainability culture (in this case environmental) becomes particularly relevant, since work activity intrinsically encompasses a synergy among workers’ daily tasks, directed to a certain common goal. This common goal, nowadays, is not only the mere maximisation of profit, but also the establishment of the societal role and identity (Cornelissen et al., 2007) of the organization, which endures its legitimacy both within the organization itself and in relation to society.

This study draws from diverse areas of human sciences to tackle the multidimensional challenge of examining the spread of environmental culture and identity. Culture and identity are two key concepts in analysing social processes (Grimson, 2010), such as the diffusion of environmental sustainability. In the interest of clarity, these concepts will be first defined in general and then into the field of sustainability studies, and finally in the domain of organizational studies.

2.3.1 Environmental culture and identity

According to the literature (Kidd and Teagle, 2012; Grimson, 2010; Erez and Earley, 1993; Cohen, 1993, Shweder and LeVine, 1984) culture refers to the way of life of a certain group of people, includes patterns of social organizations and normal ways in which people are expected to behave in a certain society. It concerns attitudes, beliefs, customs, rituals, traditions, and meanings in that society. Identity, instead, is related to the feeling of belonging to a collective (Grimson, 2010: 63). Following Kidd and Teagle (2012), the study of culture and identity involves the following issues: a) the relationship of the individual to the group; b) the degree of freedom that individuals have in their daily life; c) the type and level of self-consciousness individuals have in respect of their behaviour; d) the degree of control that the social framework into which individuals live has over their lives (Kidd and Teagle, 2012:1).

What this study aims to demonstrate on is the potential of the environmental policies and culture in firms to foster and encourage environmental culture or identity in employees considered as individuals. In order to better explicate this process, the theory developed by Schudson (1989) about cultural objects and the theory of identity formation by Kempton and Holland (2003) results useful to understand how culture and identity formation works.

According to Schudson (1989), culture is not separable from social structure, economics, politics and other features of human activity, but it needs to be objectivized into cultural objects, that can be detected and observed. To examine the power of a cultural object, Schudson measures five dimensions: retrievability, rhetorical force, resonance, institutional retention and resolution (1989:

160). Retrievability refers to the reachability of the cultural object in space or time, in the world around or inside the mind of a person through memory (1989: 161). Rhetorical force refers to how much the cultural object is memorable and powerful (1989: 164-165). Resonance refers to the degree with which a cultural object echoes in the life of the audience (1989: 167). Institutional retention refers to how the considered cultural object is highly intertwined with the institutions (1989: 170). Finally, resolution refers to the capability of cultural objects to influence actions (1989: 171). This cultural formation may take place in many settings, workplace as one of those.

Considering environmentalism as a cultural object, bins for separate collection in the workplace may facilitate retrievability, environmental training may foster its rhetorical force, the sharing of environmental information could allow resonance, institutionalisation would pass through environmental policies in the workplace, and work activities that include an environmental action would determine resolution.

Concerning the environmental identity formation, the model developed by Kempton and Holland (2003) may serve as a basis for the understanding of this process. This model is based on three interrelated stages, that are:

- 1) Salience, which refers to the moment when a person realizes about the existence of the environmental problem;
- 2) Identification or empowerment, the phase when the individual starts to feel responsible for the protection of the environment and identifies with nature as a part of it, encouraging agency to act environmentally responsibly;
- 3) Practical knowledge, or activism, when the individual learns by doing and reaches a proficiency and a self-efficiency high enough to become a guide for other individuals.

This theory derives from the study of activists in several environmental associations in U.S. and provide insights to understand how people start to include environment in their self-concept. These models, together with the rest of the theoretical framework, have served as a basis to study environmental culture at work and in private lives of employees interviewed in the qualitative step of the research.

2.3.2 Environmental culture and identity in organizations

In the organizational domain, the identity concept embraces four levels of analysis: individual (people's personal sense of self within the organization); group (shared identity of sections and teams within an organization); organizational (identity of the organization as a whole); cultural (common aspects in identity across organizations and within a society as a whole) (Brown, 2001). Organizational and cultural identity can be considered a particular form of social identity (Haslam

and Platow, 2001), which is the part of an individual's self-concept derived from a group membership that is emotionally significant (Tajfel, 1978; Tajfel and Turner, 1979; Tajfel, 1981). People can belong to several groups and, in turn, have several social identities (Chafetz et al, 1998). As stated by Leaper (2011), the more individuals consider their membership to a group to be central to their self-concept, the more influential are social identities, due to a strong emotional tie to the group. Important social identities are associated with key processes such as within-group assimilation (pressure to conformation to ingroup rules) and intergroup biases (ingroup favouritisms and outgroup demonisations) (Leaper, 2011). However, the definition of an individual's identity also needs to include the personal identity, which is referred to the unique features that people use to define themselves as individuals, like interests and values (Marcia, 1980; Erikson, 1968). These two identities (social and personal) converge into the self-categorization (Self-Categorisation theory, Turner, 1985; Turner et al., 1987), that refers to people's self-concept where both social and personal identity coexist and may come out alternately depending on the social context (Hewstone et al, 2002). Memberships are based on other group members' prototypical attributes that underlie social categories (Turner, 1987).

Transposing this theory into the organizational context, the organizational identity (or organizational self-categorization) becomes a "psychological and social reality" and a "mental and material fact" (Haslam et al., 2003). The important consequence of this theoretical assumption, as confirmed by Cornelissen et al. (2007), is that, when a particular identity becomes internalized in a group, and consequently the values and norms associated with that identity have become salient for that group, "then that identity not only structures the psychology of individuals (e.g. their beliefs, attitudes and intentions) but also allows that psychology to be translated into the structures and products (e.g. the plans and visions, goods and services, practices and institutions) that are the material building blocks of organizational life." (Cornelissen et al., 2007: S5).

Adapting this logic to the field of sustainability in the workplace, the shared environmental identity inside an organization has the power to influence employees' individual environmental culture (beliefs, attitudes, and intentions), in a societal turn, and can be translated into environmental strategic plans, goods and services but also environmentally sustainable sustained practices and rituals.

Environmental identity is a socially constructed person's perception of the self-concept in relation to the nature (Clayton, 2003). This relation is characterized by an emotional attachment that affects beliefs, values and actions that people perform in the environment (Clayton, 2003; Stets and Biga, 2003). Identity is not fixed but is subject to change over time due to education, practices or social interactions (Gee, 2000; Stapleton, 2015). Confirmed by Clayton and Opatow (2003), group memberships and their attributes can shape environmental identities and what they implicate. Stets and Biga (2003) believe that environmental identities are even more impactful than attitudes and

worldviews in influencing behaviours, because they also incorporate the social structure of behaviours.

Sharma (2000) states that environmental issues can become integral part of corporate identity in two ways: the first is towards an internal economic focus, where the organization is oriented to an identity that chases the maximisation of short-term financial performance objectives; the second is towards a wider corporate social responsibility focus, led by corporate citizenship more than economic interests (Miles and Snow, 1978; Sharma et al., 2000). It is reasonable to believe that the latter has more impact on the individual environmental identity of employees than the former. However, what this assumption suggests is that environmental concern can become integral part of corporate identity, and consequently can create an interaction with the environmental identity of workers. This recognition gives many inputs and food for thought concerning relevance of what can be learnt and absorbed in the workplace, even though, according to Ciocirlan (2016), environmental identity has not been given enough attention in the environmental management literature. Therefore, this study aims to address this underrepresentation.

To summarize, the lasting nature of corporate identity influences the extent to which an organization motivates individuals to act in particular ways and times (Dutton and Dukerich, 1991), and, for this reason, the perceived environmental identity of an organization could have a huge impact on driving actions and beliefs of workers, to the extent of shaping their environmental identity. Demonstrating that the workplace has such a capillary educational influence would provide great motivation for policymakers to invest in work policies to re-skill, re-educate and reshape society by virtue of the sustainability transition.

2.4 Part three: Social, psychological, and anthropological theory for the diffusion of environmental culture

Many scholars from a diverse scientific and multidisciplinary landscape have studied how to foster environmental culture and environmental behaviours of individuals in firms and society. This resulted in the development and application of theories from the social, psychological, economic, and anthropological sciences. In this sub-section, the main theories collected from the literature review will be listed and explained, in order to provide theoretical tools to understand all the steps of this study, in particular the choice of topics in the qualitative step and the hypothesis development that gives foundation to the conditional analysis model in the quantitative step.

2.4.1 *Theory of normative conduct*

Probably the most influential theory for this research, the Theory of Normative Conduct (TNC, Cialdini et al., 1990) emphasizes how social norms affect personal behaviour. Social normative is divided into injunctive and descriptive norms. They have different characteristics and effects: injunctive norms are the norms that represent what a person perceives to be a right or acceptable behaviour in a given situation; they are defined by an organization, a society, a group, and show what most people belonging to that organization, society or group would approve or disapprove. This type of norm is strictly linked to social punishment. Descriptive norms, instead, come from the observation of the others' behaviour, considering what is a common behaviour in each situation (Cialdini et al., 1990).

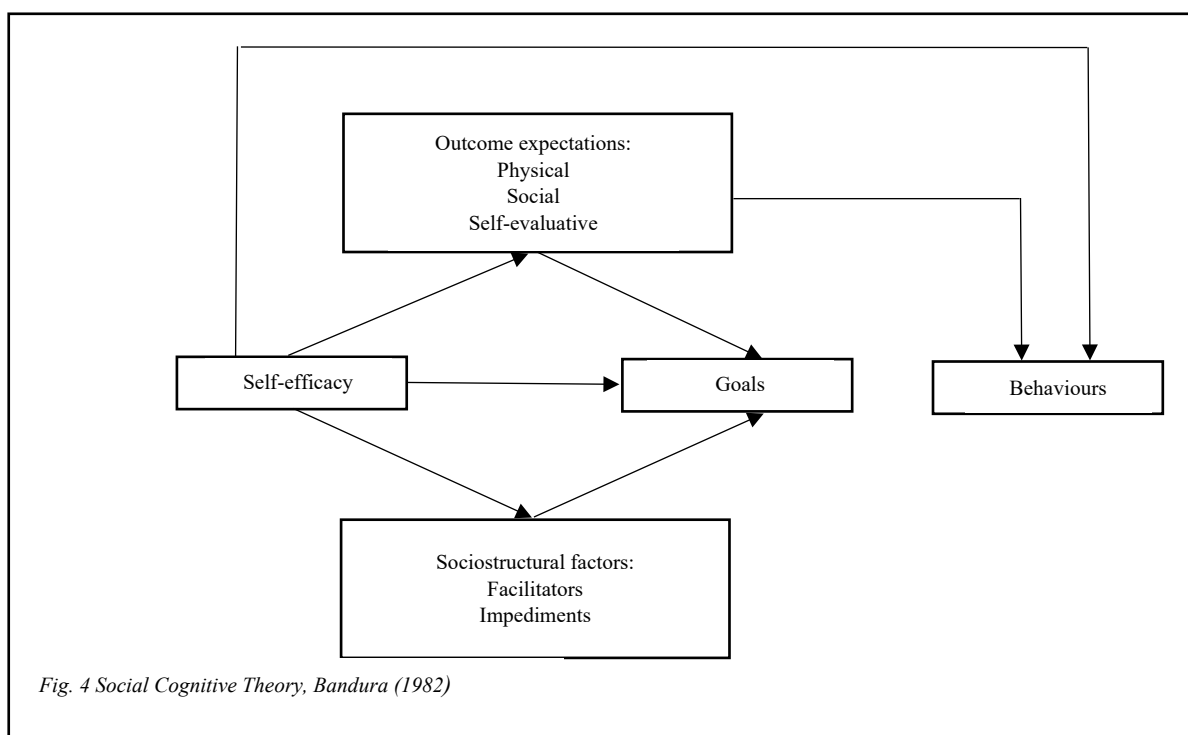
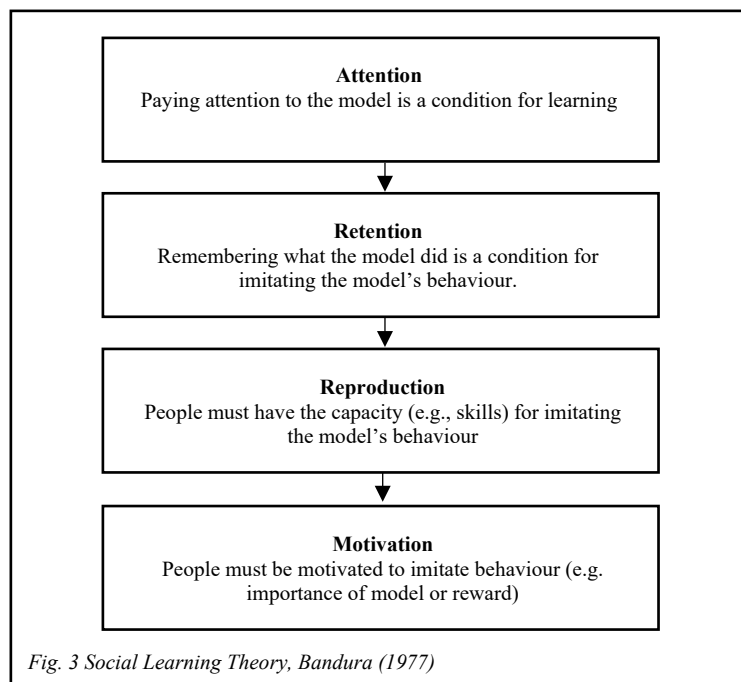
As highlighted by Bicchieri et al. (2022), the power of social norms to facilitate behavioural change has been only recently explored by economists. This may depend on the fact that normative influence is very challenging to detect, most of all via self-reporting, due to its subtle influence on daily behaviour (McDonald and Crandall, 2015) or maybe because of the Need for Uniqueness (NfU) that people perceive, pushing them to establish their independence from others (Schumpe et al., 2016). The non-straightforward influence of social norms is witnessed by the experiment on energy saving performed by Nolan et al. (2008), where there was a mismatch between people's perceptions and people's actual reaction to a message that aimed at motivating energy saving behaviours. In particular, participants were more appealed by the message encouraging them to comply with neighbours' energy saving behaviours ('join your neighbours') rather than other messages based on saving the environment or saving money. Surprisingly, the social-norm-based message was rated by participants as the less appealing and influential. This demonstrates that social norms have the power to twist common sense and intuition (McDonald and Crandall, 2015), more than what people realize. In the workplace, social norms are composed of the behaviours typically observed among peers, the best practices rewarded, the formal organizational policies and the procedures that transform those policies in tacit guidelines (Tian et al., 2020). This social normative could regard all kinds of behaviour in all types of organizations.

2.4.2 Social Learning Theory and Social Cognitive Theory

The Social Learning Theory (Bandura, 1977) states that social behaviour comes from observation and imitation of others' behaviour, going through four mediational processes that precede the effective acquirement. These four steps are attention (noticing the action), retention (remembering the action), reproduction (performance of the action), and finally motivation (the will to emulate the action). According to these theories, a mere imitation of behaviour is not definable as a cultural absorption. In fact, there is a consistent literature showing that the relationship between organizational norms (policies or social norms) and employee behaviour is not always positive (Ramus and Steger, 2000; Whitmarsh, 2009). This could depend on the fact that a behaviour devoid

of beliefs, values, awareness, and motivation could result in a one-off action instead of in a different (more sustainable) approach to reality (Thøgersen and Crompton, 2009).

Social Cognitive Theory is the cognitive formulation of Social Learning Theory (Bandura, 1982; Glantz, 2001). In this theory, people learn most of their behaviours from the actions of others (Bandura, 1997). Those behaviours are determined by goals, outcome expectancies, self-efficacy and socio-structural variables. Socio-structural variables, in particular, are external factors that are assumed to make easier or inhibit the performance of a behaviour and can affect behaviour through the change of goals (e.g., the workplace environmental system or policy) (Conner, 2015).



2.4.3 Interdependence Theory or Social Exchange Theory

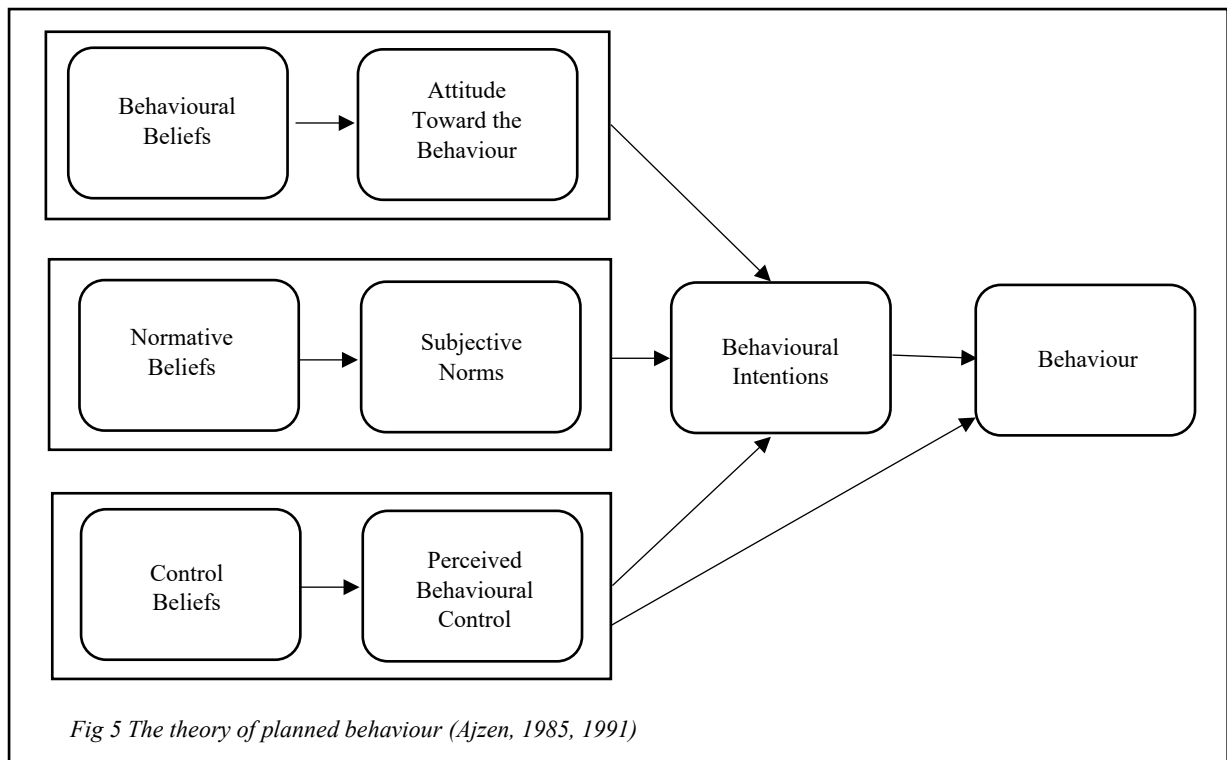
Interdependence Theory was firstly introduced by Kelley and Thibaut in their book “The Social Psychology of Groups” (1959) and was formalised in their second book “Interpersonal Relations: A Theory of Interdependence” (1978). It is a social exchange theory (sometimes referred to as Social Exchange Theory or SET) and posits that interpersonal relationships are defined through a process of interaction that leads people to influence one another’s experience (Van Lange et al., 2014). There are many fields in which this theory has been applied. In the organizational field, according to the SET, people build dynamic relationships where there is a constant exchange of resources among actors, guided by rules of exchange such as social norms (Korte, 2009).

In the organizational field, one basic concept of the SET is reciprocity (Blau, 1986; Cohen and Bradford, 1989), intended as the expectations of people to receive balanced exchanges of favours or resources in respect of what they perceive to give to the organization or to peers. However, cognitive and affective constructs have begun to be considered determinant also in the organizational field. An example is Lawler (2001) that promoted an affective theory of social exchange, that emphasised the importance of fairness, solidarity, trust, and commitment in exchange relationships, also in organizations.

2.4.4 Theory of Planned Behaviour

Pro-environmental behaviours can be investigated with the aid of many socio-psychological theories, like the Theory of Planned Behaviour (TPB) (Ajzen, 1985; Ajzen, 1991). This theory asserts that the main antecedent of a person’s behaviour is the behavioural intention, which is in turn determined by attitudes (how the individual evaluates the behaviour, her/his expectations or desirability), subjective norms (the perceived social pressure to perform that behaviour, expectation of the reference group and individual’s motivation to comply with such expectations) and perceived behavioural control (self-efficacy in performing the behaviour or having control on it) (Ajzen, 1985; Ajzen, 1991).

A study by Greaves et al. (2013) demonstrated that these three constructs of TPB were significant predictors of behavioural intentions to use videoconferencing, with higher direct effects of attitudes and subjective norms over the perceived control.



2.4.5 New Environmental Paradigm

The new environmental paradigm perspective (NEP; Dunlap and Van Liere, 1978) derives from the necessity to change the dominant social paradigm, defined antienvironmental by Pirages and Ehrlich (1974). This paradigm is established on the acknowledgement of humanity's ability to derange the balance of nature, the beliefs in the limits to growth for human societies, and humanity duty to preserve the balance of nature (Dunlap and Van Liere, 1978, Dunlap et al., 2000, Dunlap, 2008). The NEP is measured by the NEP scale (Dunlap and Van Liere, 1978; Dunlap et al., 2000). The scale has been found to be associated with environmental beliefs and attitudes (Pierce et al., 1999, Stern et al., 1995; Lind et al., 2015). In other words, NEP scale measures the endorsement of an ecological world view. It has been included, for example, in the theory on commitment to the environment developed by Davis et al. (2009).

2.4.6 Norm Activation Theory and Value-Belief-Norm Theory

The Norm Activation Theory (NAM) was formulated by Schwartz (1977) and posits moral norms as primary determinant towards individual's beliefs and behaviours. It includes three conditions to predict pro-social behaviour: awareness of consequences, ascription of responsibility, and personal norms. The first concerns awareness of the negative consequences for not acting pro-socially, the

second refers to the sense of responsibility for those negative consequences, and the third is the perceived moral obligation to act or not in a certain way (Schwartz and Howard, 1981; De Groot and Steg, 2009).

Value-Belief-Norm theory (VBN theory; Stern, 2000, Stern et al., 1999) is an extended model of Schwartz's NAM (Tezel and Giritli, 2019) in the field of environmentalism. It claims that individuals with strong environmental values are aware of the consequences of their non-environmental actions (AC), are more susceptible to the responsibility coming from these actions (AR) and are consequently more likely to engage in pro-environmental behaviours (Stern et al., 1999; Stern, 2000). This theory integrates NAM (Schwartz, 1977), NEP (Dunlap and Van Liere, 1978) and value theory (Schwartz, 1992), and establishes when the individuals feel morally obliged to act in environmentally friendly ways (Steg, 2005; Lind et al., 2015).

2.4.7 Self-Determination Theory

Another relevant theory in the investigation of the potential effects of employees' perceptions on employees' PEB is Self-Determination Theory. Self-determination theory (SDT) by Deci and Ryan (2000) distinguishes between controlled and autonomous motivation. The first is led by internal or external pressure, the second is led by will and free choice. Norton et al. (2015) found that required and voluntary environmental green behaviours are influenced in turn by controlled and autonomous motivation, so there is high likelihood that autonomous motivation could influence employees' (as individuals) commitment to the environment. On the other hand, actions have also to be organized and executed. The capability to do that is called self-efficacy (Bandura, 1997) and according to Chen et al. (2015) green self-efficacy turns to be "the belief in individuals' capabilities to organize and execute courses of action required to achieve environmental goals" (Chen et al., 2015: 1171).

A study that used SDT to investigate the influence of employees' green work climate perceptions on motivation to perform PEB is the one by Hicklenton et al. (2019). They wanted to detect the effect of policies, processes, and practices (active encouragement) and the effect of autonomy support (the level of support employees' autonomy for job tasks), considering autonomous and controlled motivation as mediators between work climate and pro-environmental behaviour. The interesting and original aspect of this research is the exploration of certain motivational patterns that can conduct to positive spill-over effects outside the workplace. The spill over effect is based on the concept that small changes towards a more sustainable attitude will lead to the internalization of intention to that behaviour and consequently to bigger environmental changes (Thøgersen and Crompton, 2009). According to SDT, internalization is an active and natural process of socialization, where individuals try to transpose external regulations into personally endorsed values and self-regulations (Deci and Ryan, 2000). Truelove et al. (2014) that spill-over effects coming from an in-role behaviour

(behaviours formally required by the job) are more likely to derive when: a. the pro-environmental behaviour is internally motivated; b. the domains of primary and spill-over behaviour are similar; c. the spill-over behaviours are easy to perform.

It means that if an employee is engaged and in one basic environmental action, this will lead to the internalization of “moral credentials”, or the right to engage in other sustainable actions by enhancing a pro-environmental identity.

The research by Hicklenton et al. (2019) showed that employees working in a pro-environmental climate and provided with strong autonomy support reported higher level of autonomous motivation (Deci and Ryan, 2000) and higher engagement in more pro-environmental behaviours both inside and outside the workplace. However, internalization is a delicate process and difficult to control towards externalities. According to Hicklenton et al. (2019), controlled motivation towards external interventions such as punishments or rewards is generally associated with non-lasting behaviour change because of the lack of internalization of the regulations that control the behaviour. In the case of incentives or employee recognition programs, the target behaviours usually disappear at the end of the intervention. This means that policymakers should avoid strategies that rely on punishment or reward because they can turn out to be time-consuming and inefficient (Hicklenton et al., 2019), and should aim at interventions that seek internalization of regulation. On the contrary, failing attempts to apply controlled motivation could also produce a negative spill over effect, as a consequence of the underestimation of the broader social context by focusing on a low-impact individual behaviour (Thøgersen and Crompton, 2009). People motivated by saving-money incentives will not become “the sort of person who acts sustainably”.

Unfortunately, this has not been significantly proven and the current study is trying to mind this gap in the literature. While the study of Hicklenton et al. (2019) focuses on behaviour inside and outside the workplace, this study focuses on the power of the workplace to intervene on the commitment of a person towards the environment, which is more related to the personal culture and self-development of a person.

Following Afsar and Umrani (2019), studies on environmental concern shifted only recently from an institutional or organizational focus to an individual focus. More precisely, the authors state that there is the need to extend research on how Corporate Social Responsibility (CSR) practices, that include internal environmental policies, motivate employees to engage in socially responsible behaviours such as PEBs, and on the relationship between employees’ perceptions of organizational efforts towards CSR and their engagement to extra-role behaviours, i.e. behaviours “not formally required for employees’ jobs” (Chou, 2014: 438), since these processes are not clearly understood (Afsar and Umrani, 2019).

2.4.8 Self-Expansion Theory

The Self-Expansion model (Aron and Aron, 1986; Aron and Aron, 1996; Aron et al., 2001) addresses the basic processes of human close relationships. The model is based on two principles: the first is Self-Expansion Motivation, which states that people have the ambition to expand their potential efficacy, the second is the Inclusion of Other in the Self principle, which states that people expand themselves through close relationships (Aron et al., 2013). This theory relates to other two major relationship theories, namely interdependence and attachment theories.

The model posits that the expansion happens by having access to the other's social, intellectual and physical resources, perspectives, and identities, elements of the self which become employable to one's self and are able to increase individual's self-efficacy. According to Aron et al. (2013), this increase in efficacy makes people more able to engage and enjoy more in physical and social environments, to become more comprehensive.

	Self-Expansion Motivation	Inclusion of Other in the Self
Definition	Motivation to increase resources, perspectives, and identities in order to enhance ability to accomplish goals	Treating another person's resources, perspectives, and identities as if also one's own
Subjective experience	Desire, goal orientation; during process of expanding, if rapid, exhilaration	Closeness; experiencing other's outcomes and responses as one's own
Type of process	Motivation	Cognition
Example measures	Self-Expansion Questionnaire; activation of neural motivation/reward systems	Inclusion of Other in the Self Scale; cognitive confusions of self's and other's traits

Fig. 6 Table from Aron et al. (2013). "Distinguishing Self-Expansion Motivation from Inclusion of Other in the Self", p. 2

2.4.9 *Social Information Processing Theory*

This theory has been originally developed by Salancik and Pfeffer (1978). It refers to the way people process information in social situations (Martel, 2019). The basic assumption on which the theory is built was that individual perceptions, attitudes, and behaviours are formed by information cues, like values, requirements, expectations from the social environment, beyond the influence of personal traits and dispositions (Bhave et al., 2010). Social information processing theory has been applied in several fields, such as the field of computer-mediated communication (CMC) by Joseph Walther (1992), as well as in children's social adjustment (Crick and Dodge, 1994), or in general for the study of problem conducting in psychology. It involves five staging: the act of encoding the social cues, the interpretation of cues, the response access, the response evaluation, and the response enactment (Mathieson et al., 2011).

2.5 Conclusions from literature review

This literature review aimed at answering to the following questions: why firms engage in environmental issues, how they manage to engage in those issues and what are the possible impacts of these environmental choices on employees. Moreover, it intended to serve as a theoretical basis for the multi-methodological construction of this study. The theories listed are not mutually exclusive but compose a puzzle in the attempt of explaining social human behaviour and internal environmental dynamics.

Repeatedly the literature indicates that a pro-environmental workplace leads employees to perform pro-environmental behaviour, but as claimed by Afsar and Umrani (2019) it is not clear what is the process that takes from perceptions to behaviour, being the behaviour a product of the interaction of various endogenous and exogenous forces – as highlighted by the theories listed in the previous section. Those theories have been used in different ways. Since this research has no previous replications, a qualitative study has been conducted to identify the drivers of the workplace effect on environmental culture and identity internalization of employees. Once the drivers have been identified, the most relevant theories have been selected to develop a theoretical model based on hypothesis.

Moreover, relevant for this study is the understanding of when this behaviour becomes part of the culture and when gives rise to spill-over effects, that are the demonstration that a learning process took place. In other words, when a person is able to abstract from the single behaviour and to apply the respect for the environment as a leading principle of all his/her actions. This would entail the inclusion of the environmental concern in the self-concept and its prioritization over other self-

categories that contrast the environmental protection, like, for instance, laziness or the need for novelty.

Following Kim et al. (2019), pro-environmental behaviours in firms are more likely to increase in green workplaces when environmental training and performance appraisals are provided. This can justify the view of the workplace as a school for adults, that can serve as catalyser of environmental learning and, by product, of the spread of environmental culture also outside the workplace.

3. Qualitative research on Italian employees: environmental culture and identity through the workplace

3.1 Introduction to the qualitative step of the study

In the first chapter of this manuscript, the general features of the entire research have been outlined. Before focusing on the content of this chapter, a summary will introduce the qualitative part of this research.

The leading hypothesis of this study is that, in a green workplace, people are more likely to absorb environmental culture and identity at a personal level. The environmental identity is essential to motivate intentional pro-environmental behaviours through sustained environmental practice (Kempton and Holland, 2003). Demonstrating that a green workplace fosters personal environmental culture could help overcoming the difficulty of reaching and engaging households and could consist in another step forward in pursuance of structuring an educational and overarching environmental transition system, which takes into account adults and efficiently speeds up the cultural absorption of environmental sustainability in as many parts of a community as possible. The main goals of this research are:

- a) to explore the interrelation between corporate environmental culture and personal environmental culture in employees, in order to understand whether the workplace has a role in developing a personal and social ecological identities;
- b) to investigate the personal, policy and social drivers of environmental commitment in the workplace, in order to have clear guidance for policy intervention;
- c) to study the outcomes of the current implementation of international regulatory pressures.

To achieve all objectives, the methodology used has a triple line: a qualitative approach (interviews of employees) for the first objective, a quantitative methodology (survey) for the second one, and a content analysis of the sustainability reports (defined at p. 35) for the third objective.

The qualitative part, on which this chapter focuses, consists in a semi-structured interview conducted on a sample of 29 workers – in 9 different firms belonging to several sectors – with diversified levels of activity and corporate hierarchy. The sample has been chosen from another Italian survey about eco-innovations in manufacturing firms, carried by the Department of Economics and Management from University of Ferrara, which collected 4565 answers in 2018. Among those firms, only the most eco-innovative have been selected. The criterion for identifying the eco-innovative ones is the following: only the companies that have totalled a number of eco-innovations exceeding 5/10 (451 firms) were asked to participate to this new research, in order to have proof of the corporate interest towards green issues. The interview provided questions about the employees' definitions of environmental sustainability, about environmental practices, and about environmental education and initiatives, declined both at a work and at a personal level.

The qualitative step of the study aims to identify the elements of diffusion in an array of influence that goes from the workplace to the personal culture. The researcher focused on those aspects that imply learning processes stimulated by the workplace, and not vice versa. As established in the first literature chapter, there is a gap concerning this topic: there are studies analysing the impact of green employees on the environmental performance of the company (Smith and O'Sullivan, 2012); other studies that focused on the effect of the green work climate on pro-environmental behaviours of employees (Hicklenton et al., 2019), but no research on the potential of a green firm to instil in employees environmental culture has been conducted, at the best of the researcher's knowledge.

Isolating the monodirectional effect of work culture is challenging for two reasons. First, as stated by Schudson (1989) culture is inseparable from the context, and the two spheres of private life and work either (Pfeffer and Sutton, 2006; Muster and Schrader, 2011). Secondly, in this specific research, there is no empirical proof of the fact that employees were less environmentally concerned before they started working for the green company. Despite this, the interviews investigated the historical employment relationship with the workplace, the green changes of the firms to comply with new green regulations, the effect that those new regulations and eco-innovations adoption had on personnel, if existing. All these themes were crucial for the investigation of the salience (Kempton and Holland, 2003), a fundamental concept for environmental identity formation. Detecting that salience of environmental concern that may take place in the workplace would support the idea that the workplace has a role in environmental culture absorption.

Given the uncommon declination of the topic, it was decided to proceed in the first instance with a qualitative approach to understand the drivers and the main mechanisms that come into operation in the cultural flow that goes from the work culture to the personal one. This helped to choose, among the socio-psychological theories listed in the second chapter, what are the most relevant for the scope of this research. They have been used for the development of hypothesis at the basis of the model

tested in the quantitative step. The literature was useful to identify the topics of the interviews, that will be displayed in the methodological section of this chapter.

3.1.1 Data saturation

The sampling process was guided by the principle of data saturation (Fusch and Ness, 2015). For this reason, it was not considered completed until its achievement. Data saturation is a complex concept that can be summarized into the extent to which a researcher reached enough information to replicate the study (Parker and O'Reilly, 2012); it deals with the depth of the data collected (Burmeister and Aitken, 2012) and has no standardized criteria to be attained (Fusch and Ness, 2015).

For this study, the criteria for data saturation were the following. The first criterion was having as many diverse points of view as possible, including the ones of the lowest chain of command, like workmen. The reason is that usually (environmental) policies follow a top-down direction and have a higher impact on those who are immediately under decision-makers. Workmen are the brawn and must implement policies without necessarily understanding the motivations behind those. Once the sample achieved enough differentiation and heterogeneity, including several workmen, the first criterion was considered met.

The second criterion was to include several types of sectors and work activities to understand if this would have an impact on culture. More specifically, it was in the interest of the researcher to investigate the difference between firms that included environmental sustainability in their core strategy and businesses that did not. As explained in the previous chapter, firms can include environmental sustainability in their activities in different ways. They can decide to measure their environmental impact with an external consultant, can create an environmental division inside their organizational structure, or can include environmental sustainability in the general strategy, making it a guiding element in decision-making (Doppelt, 2004). In this last case, environmental sustainability is transversally spread in every aspect of the firm, for increasing societal impact or competitiveness. These decisions over the sustainability inclusions are not necessarily linked to the core business of the firm: a company can treat natural resources as a core business, but decide not to build up its strategy on environmental sustainability; vice versa, a heavy industry company, unsustainable by nature, can decide to make sustainable strategic choices (for instance, compensation, which is not regulated). Deciding to make environmental sustainability the core corporate strategy can be an indicator of the inclusion of environmental concern in the corporate identity (Sharma, 2000).

These differences in strategy orientations were included in the criteria for selection to observe how environmental culture is declined into firms with and without an environmental core strategy. The strategy was pre-assessed with desk research concerning firms' mission and vision shared on their company websites.

Another interesting element was to check the differences among small, medium, and large enterprises. Large firms are more subject to regulatory pressures. For instance, large listed firms are obliged to publish sustainability disclosure, unlike SMEs. At the same time, small firms have less complicated decision-making processes, they have simpler organizational structures, therefore easier information sharing. About this, literature states that smaller firms do not prioritize or systematise environmental aspects because of lack of financial, human, or structural resources (Ramus, 2003; Hourneaux et al., 2014; Cuomo et al., 2022; Christensen et al., 2021), but from the point of view of cultural diffusion, following social identity and self-categorization theories (Bandura, 1977; Turner, 1985), the littler is the group, the easier is the strengthening of in-group beliefs. It is, however, not possible to make a priori assumptions and the interview will show the way.

To summarize, the criteria for data saturation were: a) diverse workers points of view, including workmen; b) firms with different core business and environmental strategy; c) small, medium and large sizes. Once these criteria were met, no more firms needed to be included in the sample, achieving data saturation with 29 respondents.

3.2 The qualitative methodology

Nine firms participated to the research, and for each firm from three to four respondents were selected, for a total of 29 respondents. The respondents of each firm differed in area of work and hierarchical level, in order to explore multiple points of view of the same phenomenon, that is the relation between environmental sustainability in the workplace and environmental sustainability in private life. Interviewing several people of the same firm was useful to understand whether they all had the same perception about their workplace's environmental sustainability and how this interacted with their own environmental culture.

The analysis has been carried first case by case and after question by question, and in the end firm by firm. The case analysis aims at identifying the most relevant insights arising from the topics; the question analysis aims at looking at the questions of the same topic in a systematic way; the firm analysis wants to explore how sustainability is experienced in different sectors and sizes.

All the aspects of methodology will be deepened in the following subsections. However, following Morse (1991) there are some relevant aspects concerning the style and the organization of interviews that are worth mentioning before others.

The first aspect to consider is that interviews were formally prearranged with respondents: a date and time were decided in advance with them (i.e., they were not occasional conversations). Information about macro-topics of the interview were sent to the respondents via e-mail before the interview, to give respondents a general overview of the topics of the interview. However, exact questions were not pre-emptively shared to not compromise authenticity of answers.

The second aspect to consider is the channel, that in this case was the videocall, due to COVID-19 and the dislocation of respondents throughout all Italy. This gave the interviewer the possibility to observe the body language and facial expression of respondents, trying to catch non-verbal communication aspects, a plus-value for content analysis. However, a physical interview in the workplace would have given the opportunity to have idea of other aspects, not reported by respondents. Unfortunately, this was a limit due to circumstances.

Third, all interviews were “solo interviews” (Morse, 1991: 189), to allow respondents to feel comfortable with sharing the truth and diminish the desirability bias. According to Corbetta’s manual on social research (2014), desirability bias is the tendency of respondents to satisfy the interviewer’s – or in general others’ – expectations because of the need of social acceptance. In a conjoint interview, the fear of judgement could have been perceived by respondents on two main levels: first, sustainability deals with beliefs and has strong moral and social components; secondly, part of the interview concerned respondents’ personal attitudes and meanings (Kelly, 2010) about the phenomenon of sustainability.

3.2.1 Sampling

The qualitative research carried out consists in semi-structured interviews conducted on a sample of 29 workers belonging to different firms of several sectors, with diversified types of activity and levels of corporate hierarchy. Since the research is qualitative, non-probability sample methods were chosen.

Two main phases of the sampling process can be identified: the first phase concerns the selection of the firms; the second phase concerns the selection of employees inside selected firms. The first selection has been performed on a convenience sampling basis, drawing from an already existing dataset. This dataset belongs to a survey conducted by University of Ferrara and CERCIS (Centre of Research for Circular Economy, Innovation and SMEs) on the relationship of Italian manufacturing SMEs with eco-innovations in the two-year period of 2017-2018 (Antonioli et al., 2022). It counts 4565 answers. This dataset was chosen because one of its questions was about 10 possible eco-innovations that the firms could have adopted in the previous two years. Since eco-innovations are usually considered not central to the profitability of a company and require a higher level of managerial attention and commitment (Ramus, 2003), they have been used in this study as an indicator of environmental interest. This is an important aspect to consider in order to answer the research question, which is to explore the relationship between a green workplace and the green culture of employees. Thus, the selection of the sample has been initially performed only on the firms that have a number of minimum five eco-innovations, in this case 451 firms, to have proof of the corporate interest towards green issues. The software Stata was used to perform the selection. Firms were reached out via email. The email contacts have been collected via desk research: 49 firms have been excluded because of the missing email address on their website, hence 402 firms have been

reached out. Among the contacted firms, 6 decided to participate to the proposed interview. These firms will be referred to as “eco-concerned”.

Subsequently, also firms that totalled 0 eco-innovations have been included in the research, seeking the point of view of firms with low interest in green issues: only the emails of 286 out of 2,584 firms who declared 0 eco-innovations have been found via desk research. Of those, 3 firms confirmed their participation to the interview. This first part of the selection process has been carried out from December 2020 to December 2021⁴. However, a control question about eco-innovations adopted has been included in the interview to control this criterion.

The second phase of the selection concerns the internal selection of respondents and is considered, therefore, a purposive sampling. The firms that confirmed their participation were contacted via phone and informed about the interviewer’s requests over the characteristics of respondents. The minimum number of participants requested to each firm was 3 and the identification criteria were the following:

1. Diversified hierarchical level: each participant should have belonged to a different authority level (manager, employee, workman, etc.);
2. Diversified areas: each participant should have worked in different departments (production, communication, logistic, administration, sales, etc.).

These criteria allowed the interviews to collect heterogeneous points of view from workers who are affected by environmental practices in the firms in different ways.

Criteria for selection	Types
Hierarchical levels	Executive Manager Specialist Clerk Workmen Technician External consultant
Size	1 large firm 2 medium firms 6 small firms
Areas of work activity	1 HR manager 1 HR specialist 3 Marketing specialists 1 Sales manager 1 Software engineering specialist 5 Administrative clerks 1 Executive

⁴ a very hard period for companies and employees since it was in the middle of the COVID-19 second wave. This may have caused the very low response rate.

	6 Workmen/workwomen
	2 Safety manager
	1 Environment and quality Head
	1 Technician
	1 Project manager
	1 Production manager
	2 Graphic design specialists
	1 R&D specialist
	1 Quality manager

Table 1. - Composition of the sample

The firms selected belong to the following sectors: packaging; natural pharmaceutical products; manufacture of machinery for tannery; industrial electrical systems of automation; typography; polyethylene recovery and regeneration; automated handling; automatic control systems; assembly and manufacture of electrical appliances. The hierarchical levels of respondents are various, i.e., managers, accountants, workmen, external consultants. The company departments involved are also highly heterogeneous, involving quality management, Human Resources (HR), administration, graphics, marketing, research, and development (R&D), sales, technical office and production. This gave the researchers the possibility to explore the point of view of different levels in the firm. The sizes of the firms in the sample are from small firms to big firms. Tab. 1 summarizes the precise composition of the sample.

3.2.2 Privacy

Before interviews, respondents were informed about generalities of the interview and were given a privacy form to confirm the use of data for scientific purpose only. The demographic variables (role, hierarchy, firm size, sector) will be reported in the results separately in order to make impossible the reconstruction of profiles to respect respondents' privacy.

Gender variable, as well as age or location, is not considered because it is not relevant to the scope of the research.

3.2.3 The questions

To deeply explore the interaction between the green concern of firms and employees' sustainability culture, the questions were not standardized. This means that the data produced derive from the interaction between interviewer and respondents, in accordance with literature (Kelly, 2010; Mishler, 1986). Following the general principle of the interview as a communion explained by Ezzy (2010), the researcher tried to improve reflexivity of respondents with further questions, when needed. However, questions followed a baseline structure to cover the same range of topics. All interviews

started with the interviewer sharing a general definition of sustainable development and environmental sustainability, to give the respondents a general overview of the topic. After this, the respondents were asked about two sets of questions. The first set concerned sustainability in the workplace: their own definitions of sustainability in the workplace, the sustainability practices of their workplace, about specific sustainability training received and sustainable bottom-up initiatives. The second part of the interview was about their personal culture: the questions were about their own definition of a sustainable lifestyle, their actual sustainability practices in their daily life, the moment when they started caring about sustainability (defined salience by Kempton and Holland, 2003). Finally, control questions about the eco-innovation implemented by their firm (since the sample was chosen on that) and about their opinion on the influence that work can have on personal culture were asked to check the validity of sampling criterion and the recognition of communication between the working and personal worlds.

The topics followed the explained guideline, but respondents were left free to expand to other areas. To maintain a high level of freedom, interviewees were not asked specifically about environmental sustainability but about sustainability in general. However, additional specific question about environmental dimension were added when needed.

The qualitative interviews lasted from 15 minutes to more than one hour. It depended on the personality and availability of each respondent. However, the average duration of the interviews was 30 minutes. In the Appendix, the general questions are provided at p. 106.

3.2.4 Coding protocol

The interviews have been conducted in Italian and transcribed. The methodology used is content analysis and it has been conducted using a software for qualitative interviews, namely ATLAS.ti. This software makes the systematization of answers in tables much easier and precise. According to the literature used (Hsieh and Shannon, 2005), there are many types of content analysis. The three main types are the conventional, the directed and the summative. Conventional content analysis develops a coding protocol during the data analysis, using simple and pure observation. The directed, instead, uses a coding protocol already decided previously thanks to literature review, but do not exclude the definition of other codes during the data analysis. Finally, the summative analysis starts with the identification of certain keywords coming from the researcher's interest or from literature. For this study, a summative approach seemed more appropriate. The reason is that a summative approach gives both a structure of codes repeated in each case, that allows comparability among answers - which is an essential precondition to meet data saturation (Fusch and Ness, 2015) - and the freedom to gather additional insights while coding.

For these reasons, the main codes were decided before the analysis, drawing from the literature review those topics that seemed to reflect the researcher's interests, other codes were detected during the data analysis considering inherent relevant additional topics.

Table 2 shows the codes for each topic, with inherent examples. In the first topic “own definition of sustainable workplace”, the codes identify the level of awareness of respondents on sustainability in the workplace. A score from 1 to 5 on the preparedness of the respondent was given to quantify the respondent’s awareness. This quantification is supported by literature because it helps to detect valuable insights in content analysis (Doni et al., 2020; Matuszak and Róžańska, 2017; Venturelli et al., 2017; Beretta and Bozzolan, 2004; Chauvey et al., 2015, Korka et al., 2021). Despite the fact that there are articles supporting quantification in content analysis, there is not a method to calculate this score yet. Therefore, the score was constructed by the researcher based on her impressions.

This same rating method was adopted also for the sustainable practices in the workplace. In this case, the score from 1 to 5 assesses level of pro-environmental practices of employees. In order to increase objectivity and reduce bias, the rating was also performed by another researcher independently. The two scores (awareness and practices) were summed up to have a total score indicating the environmental culture in the workplace, that includes both the meaning and perceptions of employees and environmental practices of the firm. Afterwards, personal environmental awareness and personal environmental practices were evaluated in the same way. The topic “specific sustainability training in the workplace” was coded with three subcodes: yes, no and “self-training”, which included voluntary webinars, seminars or readings about sustainability issues; “proactive bottom-up sustainable initiatives” and “work influences culture” were coded as a dummy variable (yes or no), while salience was grouped in 5 subcodes:

- education, when the respondent retraced the development of environmental concern to school or family;
- self-efficacy, when the respondent started caring about the environment when moving on their own;
- regulation, when the respondent started caring about the environment after the implementation of a specific regulation;
- society, when the respondent mentioned the influence of people around or media;
- workplace, when it was explicitly stated that the work influenced their environmental concern.

The codification of salience was developed during the data analysis and not decided in advance, and afterwards all the different answers were grouped in these five subgroups.

Topics	Codes
Employee’s definition of sustainable workplace	Awareness in the workplace (AW1-AW5)
Organizational environmental practices	Practices in the workplace (PW1-PW5)
Specific training about environmental sustainability	FORM_YES FORM_NO

Own definition of environmentally sustainable lifestyle	Awareness in lifestyle (AP1-AP5)
Personal environmentally sustainable practices	Practices in lifestyle (PP1-PP5)
Saliency	Saliency from education (SALI_EDU) Saliency from self-efficacy (SALI_SELF) Saliency from regulation (SALI_REG) Saliency from society (SALI_SOC) Saliency from workplace (SALI_W)

Table 2. - Coding protocol

3.3 Results

It is important to recall that qualitative research does not aim at being representative of a population – like quantitative research – but at exploring a phenomenon (Corbetta, 2014; Kelly, 2010; Mishler, 1986). For this reason, results will be first presented per topic (workplace/private life), following the guide of the interview questions, and then for intersections among topics, following and answering to the research question, for detecting kaleidoscopic insights that can inspire further future research. The results are organized as follows: first, the environmental sustainability in the workplace will be outlined. This part of results contains a description of the sample’s level of environmental preparedness and practices of respondents, the environmental training received and examples of proactive bottom-up initiatives. The second part of results concern the private life, describing also in this case the level of awareness and practices, and, in the end, the saliency paragraph. The third part answers overarchingly to the research question by addressing sub-topics mentioned in data saturation.

The tables with the results can be consulted in the Appendix.

3.3.1 Environmental sustainability in the workplace

Environmental awareness and practices. As explained in the methodological section, the “workplace environmental awareness” variable is rated from 1 to 5 by two researchers. It evaluates the respondents’ definition of environmental sustainability in the workplace, their attitudes, meanings, and beliefs. The results show a heterogeneous awareness. Some of the respondents were prepared, providing precise and cutting-edge definitions of environmental sustainability, others demonstrated to have very little knowledge about the phenomenon. There is still confusion over the terminology “sustainability”. Some respondents have immediately referred to social sustainability, saying that “a sustainable workplace is a place where the main interest is the employee’s wellbeing”.

However, only the environmental aspects are considered for the assessment. Those aspects concern, for instance, resources, mobility, waste, biodiversity, and other environmental concepts set by the SDGs and Green Deal⁵. The average score of environmental awareness among all participants resulted 3.02/5.

Under the practices' perspective, it was asked to interviewees whether their workplace was respecting their idea of sustainability and why, also detecting customs, rituals, and behaviours. This was done first to understand the respondents' perception of how green their workplace is, and secondly to have some practical examples of what makes them have this perception. Those practices included separate collection, reduce documents printing, eco-innovations for improving environmental performance, and so on. The scores went from 2 to 5. The average of all answers is 3.21, slightly higher than the awareness.

Given the definition of culture considered in this manuscript⁶, the sum of these two scores (environmental perception and environmental actual practices) produced a total score, defined "environmental culture in the workplace".

The environmental culture in the workplace was considered also at a firm level, making an average among the respondents belonging to the same company. The highest awareness and practices are found in the large firm in the packaging sector, while the lowest awareness and practices are performed by the assembler company. The sectors and dimensions differences, as highlighted in the introduction of this chapter, are two relevant aspects for the scope of the research and will be further deepened in the discussion section.

In the Appendix, table 3 and 4 summarize precisely all the results, organized in respondents and firms.

Environmental Training. Specific training for sustainability was received only by 4/29 respondents. As specified in the methodology section, also the self-training was detected. 6 respondents answered that they voluntary and proactively looked for seminars, classes, or readings about the issue. This means that 19/29 respondent did not receive any specific sustainability training (neither looked for it). To every code was given a numeric meaning: 1 for training received, 0,5 for self-training, 0 for no training. Tab. 5 in the appendix shows the totals organized per firm, considering sector and size.

Bottom-up environmental initiatives and eco-innovations. This topic was included in the interview to explore more the proactivity of respondents in proposing pro-environmental ideas or actions. In the literature, it is explained that those firms with strong orientation to sustainable innovation are more likely to motivate employees to be environmentally proactive (Ramus, 2003). It

⁵ See p. 8.

⁶ See p. 11.

is important to keep in mind that six firms out of nine were selected because of the high number of eco-innovations included. For this reason, it was asked to respondents to bear witness of some sustainable bottom-up initiatives to see whether there was a connection between the number of eco-innovations reported and episodes of proactivity. The results coming out from this question, however, revealed that also the firms that were chosen for the absence of eco-innovations implemented some. This aspect will be deepened in the discussion section.

The most mentioned eco-innovation adopted by the firms interviewed is the installation of solar panels. Another sustainable innovation that was acclaimed by five respondents as one of the most transformative, educational, and relevant was the drafting and publishing of the sustainability report. Sustainability reports (SRs) are documents that firms can draft and publish, containing environmental, social and governance (ESG) information about the corporate activities, used as a means of communication with stakeholders and investors. Three of the nine selected firms in the sample are publishing yearly the sustainability report and one among them started exactly in 2021, referring to the previous year. Even this aspect will be touched in the discussion section.

3.3.2 Private life

Environmental awareness and practices. Accordingly to the workplace area, environmental awareness in private life concerned the completeness of definitions provided by respondents, focusing on attitudes, beliefs and meaning. In this case, the average level of the awareness of all respondents is almost the same as in the workplace: 3.03/5.

On the practical level, also in this case it was asked to interviewees whether their life was respecting their idea of sustainability and why. Their perception of how sustainable their life is and some practical examples of what makes them have this perception was again graded. The grading process was based on balancing these two aspects (sustainable perception and sustainable actual practices). The scores went from 1 to 5. The average of all answers is 2.76, lower than the awareness. A difference between work life and private life may be spotted. It could depend on many reasons, like for example the fact that the level of behavioural control, in the workplace, is higher (Carrico and Reimer, 2011).

At a firm level, the highest awareness and practices are found again in the large firm in the packaging sector, while the lowest awareness and practices are performed by the assembler company.

In the Appendix, Tab. 6 shows the awareness and practice performance of every respondent in their private lives and the average of all answers, like in the workplace case. Moreover, the sum up, corresponding to the personal environmental culture of each respondent, is provided. Tab. 7 shows the firm level calculation.

Salience. Resuming the literature review, salience refers to the moment of realization of a certain cultural meaning (Holland, 1997), A growing sense of apprehension towards a certain concern or nuance becomes more salient, i.e., more acute and present. Analogously to the example of Kempton and Holland (2003), environmental salience has been investigated with the question “Since when have you started to care about sustainability?” and the answers have been surprisingly diverse. For this reason, codification was not done a priori but during the analysis. The researcher decided to create five subcategories, explained in the methodology, that included all the nuances presented by respondents. Notably, the five categories are not mutually exclusive and are likely to be coexistent in all people.

The first subcategory is education. The respondents that have been grouped under this category are 7, and they lead their realization of the importance of environmental sustainability back to their childhood. They say that school or their parents’ education have shaped their culture and have allowed them to understand the importance of civic behaviours, both towards other people and the environment. Three examples that show the salience via education of respondents who scored low, medium and high environmental culture.

Low: *“I have always considered it, my mother was a cleaning lady, so she was worse than me.”* (26)

Medium: *“I have clear memory of when I and my dad loaded the car with glass, plastics, carton, to go to throw it in the big bins. I do not have clear memory of when I decided to behave properly and take care of the environment. But maybe I do not have it because this has been drummed into me for as long as I can remember. I grew up like this and I will transfer it also to who comes after me”* (21)

High: *“I have very strong memory of primary school, in the 80s, we already had many concepts on waste, separate collection, there was a lot of promotion by Legambiente⁷ so for me this issue has always been present. [...] Legambiente was a constant presence, and I can see it not only in me but in all my schoolmates. I have been induced to have sustainable, ethical, civic behaviours during primary school. [...] My environmental concern was born thanks to primary school education received, and as well as me all the schoolmates that were with me.”* (23)

The second subcategory is self-efficacy. The literature shows that self-efficacy is important for behavioural change. In particular, as highlighted in the literature, Social Cognitive Theory (Bandura, 1988) identifies self-efficacy as one of the main antecedents and drivers of behaviour. It concerns the perceived autonomy of an individual to take decisions and perform certain actions. In accordance with this theory, 6 respondents link their sustainable concern, most of all the environmental, to the moment when they moved out on their own. This gave them a sense of responsibility over certain problems, and said they had this epiphany *“when I started doing things on my own without the others doing them for me”* (case 2). However, all the respondents of this subgroup say that they had the

⁷ Italian environmental NGO that promotes protection and respect of the environment.

good example from their parents, like in the case of educational salience, but started caring for real when there was this change in their life. Two of them also mention the impact on bills, but when they were asked whether economic reasons were part of this attention towards environmental issues, they responded negatively.

Regulation is the third group created to represent another relevant aspect arisen from the literature. On this aspect, separate collection was mentioned as main impactful: 5 respondents confirmed they started to prioritize the environment after they were forced to perform correctly separate collection. As in the previous subcategory, when respondents were asked whether it was because of the sanctions, respondents answered negatively. They insisted about the fact that it was to respect a norm, a higher good or organization that they did not want to hinder.

“There’s no specific moment, maybe it started with the new millennium, [I perceived] a kind of collective action that led me to become more aware. Maybe in the last ten years there have been a higher sensibilization that led to a higher attention towards certain behaviours. I think that the introduction of separate collection has been one of the important things that made people see first-hand these environmental problems, the fact to focus on separating can be one of the steps that increased attention towards the environment.” (9)

The fourth subcategory is society. In this group all respondents considered relevant, for the development of a sustainable concern, the influence of their social circles, such as friends, the media (social or traditional), neighbours. This group counts 6 people.

“I have been helped by media, in the sense that when this all thing started to become finally social, I pay more attention. Not that I didn’t before, but there were little things that I didn’t notice. The fact that media talk about it helps because the others’ opinion makes you realize that you made little mistakes that you can fix. For everybody, for the climate, etc.” (19)

“Documentaries and witnesses make me think more about it.” (8)

The last subcategory is composed of people that explicitly identified the workplace as the main driver of their sustainable concern and interest. This is the most relevant element, given the scope of the research. The group counts 4 people believing that their sustainable awareness and concern became salient thanks to the job activity they were doing, the regulation in force, or thanks to business training, or to the influence of colleagues. As noticeable, these last three elements mentioned (job activity, rules, business training, peer influence) can be traced back to some of the other subcategories (self-efficacy, regulation, education, society), but it becomes important to isolate the specific case of workplace to highlight that it encloses all the other conditions that led people to salience.

Some examples taken from the interviews:

“We adhered since 2018 to a project where public entities and firms make up some working groups to build sustainable initiatives. Actively participating to this project motivated me somehow. Something I have changed is the fact that I do drive back to my place for lunch, I remain in my work building and this makes me save 15 km of emissions per day. In this way, I can contribute to stem pollution. Sensibilization has increased enormously since I started these initiatives. Talking about it, sharing, make projects...” (1)

“From the point of view of ‘ecological orthodoxy’, working here opened scenarios about macrosystems that I could never imagine some years ago. Moreover, my leaders give me trust and autonomy, so that I can go to our suppliers and see the upstream circuit from ‘inside’. They collect and separate in a direct way, they get their hands dirty with plastics, paper, iron... If you do normal things like going to the restaurant, to the mall, you directly or indirectly generate waste. You cannot think that it magically disappears without nobody to take care of it. Being one of the players of this mechanism makes you aware, if you decide to be, that you should not use disposable cups or dishes. You save 1kg of polystyrene per year? Well, it’s nothing. But when 100 people save 100kg of polystyrene per year... That is why it is an ethical matter. Sometimes my wife and son tell me that I am too precise because in my separate collection I have three different kinds of plastics. My wife says to put it all together, but I do not. If you start separate, you’ll see that one somebody will do their job better. So, I can say that it is 7 or 8 years that I am like this, ‘ecologically orthodox’, but I also come from a fundamental and essential tradition of education.” (11)

“Mainly since I started working here, so 3 or 4 years ago. Before that moment I did not think about it” (12)

“I started caring more about it thanks to my job. It all started from my firm, and they transfer to the private life. Before, I did not reflect on many things, but what I have learnt in the workplace resonates in my life. When I go to the seaside and see the children throwing away things on the sand... and you tell them not to do that. It comes from inside. This sensitivity remains. I also noticed that in this way the children tell this also to the other friends. It is a matter of culture.” (24)

Another case was particularly startling. It is the case of a worker in the typography. He/she has mentioned regulation as the salience enabler, but his precious testimony demonstrated that his/her work had a strong imprinting in his/her culture. The respondent said:

“I do not recall when exactly, but for sure since our municipality imposed separate collection. When the municipality introduced different bags and bins... we started to understand more. Paper was already collected separately, but all the rest started in that moment.”

“In the workplace or at home?”

“In both settings. In the workplace we have always done it, at home I do not remember exactly but for sure before the regulation on separate collection. I remember the times when the municipal bins were still not existing, and I carried my big cardboard box to work and I threw it together with the typography paper.”

“And why?”

“It is a waste to throw it with residual waste.”

“Have you developed sensitivity towards this material?”

“Well, yes, sure, it’s a long time... In the workplace we realize it. We are not squanderers, but our production has always a scrap of paper: after one month, do you know how much paper there is to recycle? A lot.” (17)

This exchange shows that sometimes people have not enough self-awareness to identify their deep motivations, or do not have the time to select the right information to share. This worker says that he/she started to care about the environment when forced to be compliant with the law, but revealed, almost carelessly, to collect separately paper long before, thanks to his job. Abstracting from the single event, this passage is emblematic for understanding that the workplace can inspire people to develop some traits of their identity, thanks to the practical knowledge they develop and the social interactions they are exposed to. The aim of the researcher was to stress the most relevant aspect, which not always was acknowledged and explicitly suggested by the respondent. This issue needed an interpretative effort.

Work and culture. This question was asked to understand what meaning the employees give to the work. It is considered a control question because it assesses whether respondents truthfully value the workplace as a valuable element in their identity. 28/29 respondents answered that work has influenced their personal culture, while a respondent said that it has no relevance.

“When I finish the 8 hours of work, I leave everything at work, also my brain, and I go away. My job is physical, I am not like the ones working in the office, that can bring their work home. Work and home remain separated.” (26)

However, the motivations of the 28 affirmative answers can be summarized in two main elements: time and learning. They believe that work has had a strong educative influence in their lives, because of the social interaction and of the new challenges, since firms must keep up with the changing trends. Moreover, they spent most of their day in the workplace.

“When you work in a certain environment, you implement also in your private life what you learn there. How you talk deal with customers, suppliers or peers. In my opinion, if you spend a lot of time working, you spend most of your lifetime there and you inevitably bring it home.” (4)

“On me for sure. I have travelled a lot thanks to the job, also to place I would have never been alone. [...] I have had a face-to-face encounter with poverty, people without doors, windows, things that you usually see on documentaries. It makes you know diverse people, diverse points of view and ways to manage things. If you are always in your place, it is difficult that you experience so many things.” (6)

“Yes, it has influence, both positively and negatively. Work also educates personality because the work environment generates certain behaviours. I have seen many firms, I worked for many companies, I have worked for a long time in the same company, I have seen different managerial styles, and you realize that a

company is really able to generate virtuous or non-virtuous behaviours. Not only the workplace, but also the social context: in a context where everybody does the separate collection, obviously you are more prone to do that too. If you are used to do the separate collection, and then you go to work and they do not do that, you relax. Instead, if in the workplace they stimulate you to behave more virtuously, you adapt. If you are convinced that doing the separate collection is something good, you do that when you are forced to and also when you go to other places in the world because it comes natura. If you 'own' some behaviours, it is important to transmit them and trying to modify the environment around you. If you are in an environment where a certain behaviour is stigmatized, you tend not to do that anymore.” (9)

“Everybody complies with the laws, but the motivation of a certain regulated behaviour varies from a person to another. There is who is sensible, who sees these aspects as a problem to tackle first-hand, and there is who keeps responsive behaviours because of the introduction of some rules from the firm or someone else. The first are passive executors like who implements and keeps that behaviour, while the sensitive ones can also be a divulgator, not a passive executor that does it because they tell to. [...] what I try to explain to my colleagues, to my daughters, is that some things should not be done mechanically. The best thing is to understand what you are reading because you will remember it better, if you do something mechanically after some time you stop doing it. If you do that because that way of acting leads you to some positive consequences, you are encouraged to do always better.” (23)

3.3.3 The relationship between work life and private life: the answer to the research question

Since the primary aim of the current study is to investigate the influence of a green workplace on the personal environmental identity and culture of people, this section will focus mainly on the intersections between the workplace and private life of employees, with the objective of identifying which are the main forces that allow this cultural transmission. To do so, the cases have been organized in a ranking from highest to lowest environmental culture (Tab 8. in the Appendix): it is possible to find on top of the list the respondents that performed better in the environmental culture total score and, consequently, at the end of the list, respondents with the lowest scores. In Table 8, other information concerning respondents have been added for having a comprehensive overview of respondents' characteristics, that are work position, education qualification (middle school, high school, university), salience and environmental education received.

The ranking was useful to observe more thoroughly the possible differences among the cases, aiming at identifying the main drivers of environmental culture and what the most functional channels of cultural transmission from the workplace to the private life are. Isolating the effect of the workplace on culture is extremely challenging, and theoretically inadequate, since the behavioural theories listed in the first chapter claim that behaviours and cultures derive from a variety of interlinked, both endogenous and exogenous, factors. However, from the results obtained there is room to credit the assumption that workplace can play a role in the absorption of a more sustainable culture of a society. The critical elements supporting this assumption will be discussed below.

Environmental social learning in the workplace. The main consideration, deserving a first mention, is the following: the first and the third classified identify the workplace as the main catalyser of their transition to

sustainability; the second classified identifies it as the main game changer in the adult age, although considering childhood education as the main driver. The three cases provide two different motivations about the phenomenon: the first and second ranked give credit to the learning process coming from the work activity. In particular, the respondents claim that their job reinforced reflection over how the production macrosystem works, observing the role and recognizing the importance of every ring in the life cycle chain. In other words, the observance of cooperation towards common environmental goals and the understanding of processes behind environmental activities are fundamental for the activation of environmental salience. These two aspects lead back to the Theory of Normative Conduct (Cialdini et al., 1990) and to the Social Learning Theory (Bandura, 1997), identifying the social norms and the social learning as two leading processes in the environmental identity formation. Holland (1997), in their identity formation theory, call this process “practical knowledge”, as explained in the second section. Practical knowledge is the knowledge or awareness that derives from action, the so-called learning by doing process. A fundamental element of this learning process is the observation of the others performing a certain action, highlighting the importance of the social interaction and learning (Bandura, 1977). The social influence through imitation or observation emerges from all interviews as essential element for triggering sustainable concern. In this sense, working in a company whose core activity directly regards environmental sustainability could increase environmental concern and interest of employees due to the direct contact with the issue. As a matter of fact, this study shows that, at a firm level, the highest scores were performed by employees working in the packaging, pharmacy, polyethylene recovery sectors (Tab. 10). The other firms dealing with automation scored a lower grade of sustainability interest, exception made for the electrical systems firm. This exception could be well explained by the presence of sustainability training received by employees. This consideration leads to the two following themes: the importance of environmental training and the influence of the work activity on employees’ culture.

Environmental training. In the ranking, environmental training is more frequent in the highest positions, and the same for the self-training. The assumption that sustainability report increases environmental concern is also supported by the third-ranked respondent. More specifically, the runner-up case identifies the drafting of the sustainability report and the leadership support as main drivers of his/her environmental interest and culture, while the concept of collaboration as the main enabler of efficient environmental efforts. The role of the leadership in motivating environmental and social concern in the workplace has been widely studied (Siebenhüner and Arnold, 2007; Rimanoczy and Pearson, 2010), while the interaction between sustainability disclosure and personal sustainable culture of employees is still unexplored, at the best of the author’s knowledge. Current accounting literature focuses more on the relationship between sustainability disclosure and CSR performances (Christensen et al., 2017; Cuomo et al., 2022). For this reason, this research provides a relevant insight on this topic: all the respondents involved in the sustainability disclosure drafting present high awareness (they are not specified for privacy). This awareness does not always translate into environmental best practices but surely intensifies the prioritization of the issue. The awareness is higher in cases where the training is provided by an external consultant.

Environmental strategy. The influence that the work activity has on employees recalls the second criterion used for data saturation: the researcher wanted to observe the differences in environmental cultural diffusion amongst firms with different levels of inclusion of environmental sustainability in their activities. A consultation of the firms’ showed diverse levels of inclusion of the environment in their communication: some

firms have declared that environmental sustainability is their main mission, some have added a section about sustainability, some others have just mentioned it in one sentence. The consultation of the websites, compared with the environmental culture ranking of this study, revealed that the assumption that a strong environmental strategy may impact environmental culture is partially in line with results: the top-scoring firms of packaging and polyethylene recovery focus their entire communication of environmental sustainability, while the pharmaceutical company focuses on wellbeing of consumer. Apart from considerations concerning the communication strategy, these results suggest that work activity may have a higher impact on environmental culture. Probably this belongs to the fact that in some cases environmental issues are only used as competition asset but are not part of the environmental corporate identity. However, this consideration opens up several scenarios for further research.

Companies size. Another aspect that was part of the research interests was to observe the differences on the size perspective. The best scores were recorded by respondents belonging to medium and large firms. At a firm level, the large firm is the highest in the ranking. It might be just a case, but it is also reasonable to think that larger firms have a stricter set of regulations to follow and rules to comply with, which increase the level of preparation of employees. According to Cuomo et al. (2022), larger firms have a higher environmental performance than smaller firms because they must comply with stricter environmental regulatory pressures. In their study, this is more likely to happen in innovative firms rather than non-innovative firms. Following their results, this study compared the number of eco-innovations to the environmental culture scores, and there was a partial match with the research by Cuomo et al. (2022). However, since the case of misreporting mentioned in the results, this aspect was not considered valid and has been excluded.

Hierarchical level. The last consideration that must be addressed is the difference of the environmental culture among people with different hierarchical levels (i.e., workmen versus managers). Looking at the identifying variables of respondents in the ranking (education, work position), there are some speculations that can be done: people with middle school are present in the last half of the ranking (position 13 for the highest), while people with a university title are present in the highest half (position 16 the lowest). The hierarchical level does not seem to play a role, although people working in production are more numerous in the lowest positions. It is logical that the awareness may result higher in people that received some kind of environmental education. However, an important point must be addressed: people working in production of firms with higher environmental culture score better than people within firms with lowest interest towards environmental issues. This is an important result that supports the main assumption of this study.

To summarize, the respondents with the highest scores in environmental awareness and practices, both in the workplace and in private life, identify the social learning as the primary enabler of environmental prioritization, and the workplace as a propeller of environmental culture because of the learning process deriving from the social work activity and the environmental business training. The perception of working in a firm that cares about the environment, and with colleagues respecting this social norm, activates an environmental commitment that can result into green behaviours and environmental identity formation.

To conclude this section, the emblematic passage used to introduce this manuscript is taken from the interview of one of the top-scorer and a more extended version is reported below:

“The mature consciousness comes in adult age... In my case my job was my epiphany, from this point of view. I have never thrown any paper on the ground, and this is a precondition, not even for mistake, and if I see it I pick it up, I have always done it and as me all the people that have the same education. But the awareness of choosing a product rather than another started when I started working here because when I stepped in I started to see all the process that was behind the products realizations, I started to think to the complexity of making for example a can of coke, a spray bottle... there is a complexity on which we can work to decrease impact, so the behavioural awareness arrived in those moments, thanks to the job, but with a precondition of strong sensitivity set previously.” (Case 23)

3.3.4 Additional analysis

When respondents were asked about their own definition of sustainable workplace and sustainable lifestyle, without any specification about environmental or social issues, the answered have been diverse. This led to additional considerations that do not fall into the scope of this research. However, they have been analysed because they can provide fruitful insights.

Almost all respondents referred immediately to environmental sustainability, but there have also been some cases where social responsibility was considered more relevant. Moreover, some respondents referred to the three dimensions of sustainability: environmental, social and economic.

Particular attention was given to the first mention to explore what people consider most relevant. Secondly, it was assessed the level of inclusion of the three dimensions of sustainability (environmental, social, economic) in the definitions provided by them.

Concerning the first aspect, 21 respondents' first mention was environmental sustainability, 8 respondents' first mention was the social dimension, while nobody's first mention has been economic sustainability. 10 respondents considered only the environmental dimension of sustainability, 2 respondents only the social dimension of sustainability (the wellbeing of workers), consequently 17 respondents mentioned both the environmental and the social dimensions of sustainability in the workplace. The economic sustainability in the workplace was explicitly addressed to by only 3 respondents – a general director and two managers. Therefore, only three respondents on 29 have mentioned all the three dimensions of sustainability in the workplace.

Similarly to the workplace area, environmental awareness in private life concerned the completeness of definitions provided by respondents, the first mention among the three dimensions of sustainability (social, economic, environmental) and the level of inclusion of these three elements in their definitions.

The first mention is divided as follows: 22 people mentioned environmental sustainability first, while 7 people mentioned social sustainability first. Nobody mentioned, also in this case, the economic sustainability as the first issue. On the contrary, three respondents mentioned economic issues as limits to environmental and social sustainability. One of the respondents suggests:

“I try to do my best, but it is difficult. It is linked also to the economic means of a person. I and my wife do not own a house, we are renting an apartment, and this is an obstacle to do house improvements for energy waste. Some of our friends have insulated their houses thanks to the incentives of the last years, but we cannot. Some interventions demand a financial effort. Behavioural changes are doable by everybody, but structural changes need investments, both in the house and in the entire system.” (20)

People that first mentioned the social dimension, instead, were referring mostly to their wellbeing and to flexibility of working hours. Freedom and a good balance between work and private life is a primary need for them. One of the respondents also said that a more flexible life would give the opportunity to respect more the environment. Concerning the inclusion of the three dimensions of sustainability, 5/29 included all three, 16 only the environmental, 2 only the social, 6 environmental and social.

This analysis makes reflect on the still arbitrary nature of the definition of sustainability, which has not reached a shared and common perspective. Moreover, another reflection concerns the fact that the three pillars are inextricably intertwined.

3.4 Discussions

The discussion section will start with an insightful citation taken from the interviews:

“Work influences personal culture both positively and negatively. It is linked to social sustainability. If employees have an imprinting in safeguarding, saving, with this kind of mindset, they are also avoiding the waste of the firm they are working for. This spreads also to other people; the others start to think about it. This counts for everything, money or resources saving. We have compressed air machinery: it is just air, but if you save air, you save the work of the compressor and subsequently you save energy, maintenance, etc. Also, the water that we use for the machines has a disposal cost. If in the office there are two people with that mindset that pull the others in that direction, this also has effect on private life. That guy can go home and say ‘look let’s try this, we save energy’, maybe he has a son and involves also future generations. There are also negative behaviours... some people do not care. Other people are interested, committed, they suffer if they do not respect those issues, they are not ‘buck-passing’, they try to solve problems and take responsibility”. (14)

This answer suggests first the importance of the virtuous circle that may arise from the social influence, and secondly the importance of personality. A person should be prone to commit. This is difficult to manage and for this reason regulation may mind the gaps created by these non-collaborative personalities. However, as highlighted by one of the respondents, personality traits develop also thanks to the education received during childhood, but not every child has the luck to receive a good environmental education at school, also because of the economic divide that

characterises Italy and many other nations, as well as other problems such as segregation of migrants and disadvantaged social classes. Some schools have special programs developed with associations and NGOs that give children a deeper knowledge and let them develop a higher sensitivity towards the issue.

Another relevant element that has been noticed in all the interviewees that totalled the highest scores is their moral and emotional investment in sustainability, in accordance with what stated by Clayton (2003) and Stets and Biga (2003). They all communicate a strong environmental commitment, using anecdotes where they act proactively to set a good example for colleagues or other members of their family, sharing their positive rituals, and feeling a sense of responsibility over environmental degradation. In other words, this commitment often results in the identification of themselves as responsible actors and in the production of autonomous innovative sustainable behaviours displayed both in the workplace and in the private life, supporting the other two pillars of theory of identity formation by Holland (1997), that are identification and practical knowledge. The identification with the organization is also of fundamental importance: the top-scorers have demonstrated high consideration and respect for the employer, and highlighted an explicit match between corporate and personal values, supporting what stated by Ciocirlan (2016).

Moving to another issue, the firms that scored the best in environmental culture are also the firms that are the most eco-innovative, following Ramus (2003), according to a secondary data analysis of the dataset from which the firms were selected (the one by Antonioli et al., 2022). However, this was assessed by the control question about eco-innovations, that rose two problematics. The first concerns the fact that the survey from which the sample was created is dated back to 2018, while this research started in 2020. Many things have changed since then. Two of the three firms that reported 0 eco-innovations in the sample, in the meantime, implemented some sustainable innovations. The second issue is that there was a case of misreporting by the other 0-eco-innovations firm. This is a normal risk in surveys, but the consequence is that all the firms included in this study are eco-innovative firms and there is no matter of comparison with firms that are not eco-innovative.

An interesting issue arose while speaking of the sustainability disclosures: one respondent stated that they voluntarily decided to disclose sustainability information because regulation was becoming more pressing, and they knew that in the future they will be obliged to comply with it. Moreover, their suppliers and clients are multinational companies that already do sustainability reports, so the firm was more motivated to communicate their sustainability efforts in order to be more appealing for them. This leads to the assumption that the market has a powerful role in the orientation of environmental commitment of firms and needs further research.

Finally, it is important to highlight that 17 employees mentioned both environmental and social sustainability when answering to the questions concerning sustainable awareness and practices. This study was focused on the environmental shade of sustainability, but the fact that social sustainability was mentioned so often can be interesting to further explore, since it can give additional insights to the study of sustainable culture. However, there is still uncertainty over the concept of sustainability, and it would be necessary to increase sustainable education, not only in school but also in workplaces.

3.5 Conclusions

This study had the aim to explore the connection between the workplace and private lives of employees on an environmental sustainability perspective. In particular, this research wanted to investigate whether the workplace could concur to the environmental identity formation of workers, with a subsequential spill-over effect in employees' personal environmental culture. The results presented show that the workplace played a role in the formation of environmental culture of the most prepared employees, because of the practical knowledge coming from their work activities and because of the social influence that takes place in the workplaces. These two elements, that can be summarised into green work perceptions of the organization and of co-workers, foster the learning process of individuals and seem to have effect on their environmental commitment both inside the workplace and in their private lives.

The research was built in order to understand whether the perceptions over the workplace were shared among employees of the same firm by interviewing at least three people per firm. The interviewees belonged to different areas, hierarchical level, having different seniority and work experience, to assure high level of heterogeneity of points of views over the same phenomenon.

This research helped to identify the leading theories that come into operation when studying this issue: Theory of Normative Conduct (Cialdini et al., 1990); Social learning theory (Bandura, 1977). They will be used as a basis for the construction of the theoretical model that will support the quantitative part of this study. However, all the other theories will be taken into account in the hypothesis development because they can help to justify the logic array.

Finally, the main considerations of the study will be listed below:

Workplace as adult education. This research showed that the workplace can be a propeller of adults' education over certain social issues such as environmental concern. Interviewees had different levels of environmental awareness and behaviours, but the ones belonging to greener workplaces (both for the high presence of eco-innovations and for what has been declared by employees) demonstrated a higher preparedness, sensitivity, and carefulness towards the issue. Particularly relevance has the drafting of sustainability report, that significantly increased, according to 6 respondents, the preparation and mindfulness on sustainability issues. However, this may be something concerning only people involved in the drafting process, and not all the employees: one of the respondents in a

firm that published the sustainability disclosure declared that he/she did not receive any specific environmental education, contrary to what was confirmed from other respondents of the same firm. This may belong to the fact that he/she was not in a relevant position or was not involved in the drafting. This aspect would need further research.

The workplace and the environmental identity formation. Identity formation, according to Holland (1997) is composed of salience, identification, and practical knowledge. Accordingly with the research by Kempton and Holland (2003), a green workplace seem to participate to the environmental identity formation because it makes people aware about the environmental problem (thanks to environmental norms or concern), allowing salience; it increases people's responsibility to take environmental action, producing identification; and makes people feel proficient in environmental action up to become guides for the others, thanks to the practical knowledge developed.

Environmental efforts are social. No exclusions among respondents concerning the fact that the environmental effort is vain if individual. At all the levels, in all types of work done by participants, everyone was sure about the fact that the environmental effort is a social effort. Collaboration is a pillar of environmental sustainability. Despite this, 3/9 firms registered an information asymmetry among respondents over the existing eco-innovations implemented in their workplace. This could mean that there is not enough environmental knowledge sharing and decreases the rhetoric force of the environmental effort to motivate employees' green commitment. Moreover, some of the respondents identified society and societal problems (like low salaries, high pressure at work and lack of public transport) as limits to perform environmental best practices. In fact, environmental sustainability must be collaborative, but this does not imply that a bottom-up approach would be enough to tackle the environmental crisis. A transition is possible only when the environmental effort has both a bottom-up and top-down directions. If sustainable products are more expensive than environmental-damaging ones, it is difficult to address people environmental motivations.

3.5.1 Limitations

The study presents limitations of various kinds. The first set of limitations concerns selection: Since the sampling was on a voluntary basis, only firms interested to sustainability wanted to participate. Some of them wanted to declare it on their sustainability reports. This does not mean they are less engaged in environmental issues, but it does not mean either that they are more engaged than those who did not reply. Moreover, a selection bias may be present because respondents were chosen by the firms themselves, and they may have selected people involved in sustainability issues. The firms were selecting considering the number of eco-innovations adopted. Eco-innovations are only an aspect of all the green practices and policies that can be adopted in a workplace; therefore, this may be not the best indicator of environmental concern of the companies.

Only manufacturer firms have been used, because of the dataset used for selection.

The second set of limitations concerns the sampling. The initial idea was to build a control group, but it was not possible due to the low response rate and to the complexity of criteria of selection concerning employees interviewed. Among firms that declared 0 eco-innovations there are firms anyway kind of concerned with green stuff because from 2018 to 2020 many things change; therefore, it was not possible a precise identification of the difference based on eco-innovations adopted.

The third set of limitations concerns the methodology. All the interviews had the same order of topics, first the workplace and then the personal area, to create trust in respondents. Randomization of questions should be considered for further research.

In qualitative interviews it is difficult to distinguish opinions and facts. For this reason, quantitative research follows this preliminary study in the third chapter of this manuscript.

Self-reporting is always an issue, there is the tendency to appear better, to edulcorate actions.

The fourth set of limitations concern the contextual period when interviews were conducted:

Because of covid, interviews were conducted via videocall, and this creates many difficulties. First, some respondents were in co-working spaces, and this may have created some desirability bias or fear to say something incorrectly.

The initial idea was to build a control group, but it was not possible to find firms in the same dataset that meet the exact needed criteria to be considered a control group. Nevertheless, there will be an attempt to make group B as similar as possible to group A on organizational characteristics except eco-innovation, in order to regroup some results under some of the given variables. Considering only the group B firms coming from the 5 sectors of the group A, the number of the sample narrows to 511. The next step will be to collect the contact details of these firms, contact them and schedule the interviews. Usually, the answer rate is circa 10% of the total sample.

From these limitations, some other ideas of further research would be to create a field experiment about the effect of structural environmental training on employees or to study the effect of environmental workplaces on newcomers. In particular, studying the newcomers, e.g. people just hired, can help to make a longitudinal study that assesses the effects of environmental policies and green workplaces on employees, measuring their environmental culture before and after. Concerning this aspect, the seniority and tenure of employees was initially considered for this study, but it was excluded because the years of employment were all considerably high to make any valuable assumption on the level of environmental cultural absorption, and for this reason it was excluded from analysis.

As stated in the introduction, this study was the first step of a multi-methodological research. The aim was to detect the most relevant drivers of environmental culture in the workplace that can help to foster environmental personal identity and culture in individuals. The green workplace perceptions result to have a relevant role in increasing commitment and fostering environmental behaviours and

identity and for this reason the quantitative research will focus on this aspect, in chapter 2. Since sustainable reporting has had so much impact in the environmental education of employees, in the third chapter a content analysis of the three sustainability reports belonging to firms analysed is performed. This would give an idea about how a specific environmental policy (in this case, sustainability disclosure) is incorporated in different kinds of firms.

4. The workplace as a means to spread sustainability, or how environmental policies, social norms and collective culture of sustainability interact

4.1 Introduction to the quantitative step

The aim of this chapter is to explain how green workplace in firms could affect the adoption of green culture in individuals, showing the impact that green work climate perceptions have on personal environmental commitment and value. In doing so, the ultimate purpose is to explicate the role of corporate green social norms in fostering environmental commitment and to provide insight into how this commitment could be increased or engendered. The leading hypothesis is that in an environmentally sustainable work environment, people are more likely to absorb or develop a higher commitment to the environment, that influences not only pro-environmental behaviours (PEBs) in the workplace but also their environmental personal identity, creating spill-over effects in other settings outside the workplace.

The model developed in this quantitative study is the result of testing associations and effects that come from hypothesis based on the preliminary qualitative research displayed in the previous chapter and on the literature review outlined in chapter 2. These associations and effects have been tested through a longitudinal survey conducted in Italy on 271 employees belonging to 5 firms. In this step, eco-innovations were not detected because the objective is to focus on employees' perceptions and not on actual environmental performance or innovation.

The chapter is organized as follows: in the second section, the hypothesis development at the foundation of this work will be explicated; the third and fourth sections will proffer methodology and results; following, discussion and conclusions will conclude the chapter.

4.2 Green work climate, personal environmental commitment and relation with the nature: hypotheses development

Drawing from the literature reported in the previous section, it is necessary to study environmental social norms that arise into the workplace and that shape the environmental identity of the organization, the effect of these social norms on the environmental commitment of employees, and the consequences on their environmental culture and practices (i.e. the so-called pro-environmental behaviours or PEB) of employees, together with their sense of identification with the organization, which may act as a lever or lock-in in this process.

To achieve this goal, this study uses a conditional analysis model (Hayes, 2013) that studies the interaction among six variables. These six variables are:

- 1) Green work climate perception of the organization
- 2) Green work climate perception of the co-workers
- 3) Commitment to the environment in the workplace
- 4) Green innovative work behaviours
- 5) Person-environment relationship
- 6) Identification with the organization.

In this part of the chapter, the theoretical development of the hypothesis will be outlined, before reporting methods and results.

4.2.1 Hypothesis development

While work culture refers to values and broad assumptions of an organization, work climate in general refers to more tangible aspects of the work environment, like procedures, practices and policies guiding employees' behaviour to respect organization's priorities (Hicklenton et al., 2019; Schneider et al., 2013). Following Onkila (2015), behaviours and attitudes depend more on the perception of organizational engagements than its factual efforts. Therefore, in this study researchers have chosen green work climate perceptions rather than environmental strategies or actual policies. In every organization, multiple work climates operate simultaneously and lead employees to understand how and why to behave in a certain way (Zohar et al., 2005; Hicklenton, 2019). Some practical examples of these different climates, beyond the pro-environmental climate, may be the safety climate – the extent to which the organization cares about safety – or the service climate – the extent to which the organization cares about the quality of the service provided to consumers (Hicklenton et al., 2019; Kuenzi et al., 2009). Work climates are a form of psychological climate (James et al., 2008) and create responses from employees, which can activate social norms that encourage or not a certain behaviour.

Consistent with the Theory of Normative Conduct, work climate perceptions represent social norms in the workplace. Norton et al. (2014) applied this principle to the environmental dimension of social norms in organizations and studied its relationship with environmentally sustainable behaviours. They distinguished between green work climate perceptions of organizations - representing injunctive norms - and green work climate perception of co-workers - representing descriptive norms (Norton et al., 2014). Findings show that: 1) organizations with a strong pro-environmental climate could develop an environmentally protective regulation that employees are required to follow; 2) environmentally friendly co-workers influence employees' personal behaviour because they perceive it as the appropriate behaviour, and they will tend to imitate what is socially accepted (Norton et al., 2014).

In fact, green work climate perceptions concern both perceptions about the organization as an entire entity (i.e., environmental policies implemented), and perceptions of the co-workers (i.e. beliefs or behaviours). It is important to highlight that the perceptions of green work climate refer to the employees' personal and subjective interpretations and evaluations of the organization's environmental activities, which can differ from the actual practices (Afsar and Umrani, 2019).

Green work climate perception of the organization and of co-workers follow different patterns of influence of values and behaviours of employees. Concerning the first, many studies demonstrated that stronger pro-environmental work climate perceptions, both concerning the organization and the co-workers, led to employees' higher rates of PEBs (Ruepert et al., 2015; Norton et al., 2015; Kim et al., 2019; Hicklenton et al., 2019; Afsar and Umrani, 2019; Folger et al., 2005). Afsar and Umrani (2019), specifically, included in their study a morality-based view, showing how green work climate perceptions help to increase moral reflectiveness of employees, that in turn leads to greater environmental commitment. Folger et al. (2005) state, accordingly, that organizations that support and implement CSR practices (including environmental practices) enhance the feeling of meaningful existence of employees.

To detect the environmental identity and culture in employees, this study used the variable "person-environment relationship" developed by Davis et al. (2009). It relates to the feeling of interconnectedness with the environment and is defined by the researchers as the "psychological attachment to and long-term orientation toward the natural world [...] To the degree that individuals perceive that they are dependent on the natural environment for their own well-being" (2009: 174). This concept extends beyond the workplace and allows to make a further step from the mere imitation of other's behaviours (as explained by Social Learning Theory by Bandura, 1977) to absorption of a new cultural trait which is not belonging anymore only to the work environment, but is introjected in people's personal culture. These authors (Davis et al, 2009) have developed this definition on the Interdependence theory (Kelley and Thibaut, 1978; Rusbult and Arriaga, 2000), which concerns relationship interaction from the point of view of how it affects motivation and behaviour over time. When somebody is "committed to the environment", according to Davis et al. (2009), it means that

there is a *relationship* between the individual and the natural world. This increases the belief that environmental sustainability has a strong social component.

As far as green work climate perceptions of co-workers are concerned, Social Cognitive Theory and Social Learning Theory may be useful to explain the patterns of influence of values and behaviours of employees, together with Social Information-Processing Theory.

In the workplace, co-workers provide those cues through their statements and behaviours, and those help others to align their behaviours (Groth et al., 2002; Brass and Burkhardt, 1993; Afsar and Umrani, 2019). This alignment depends on a probable desire to fit in and strengthen social relationships with others (Afsar and Umrani, 2019).

When environmental concern becomes integral part of corporate identity, responsibility over environmental issues is likely to be shared among all components of the organization and justifies further issue commitment (Sharma, 2000). Commitment has a central role in being guided by environmental values and performing the intentions to behave in a way that enhances environmental protection. According to Raineri and Paillé (2016), employee environmental commitment in the workplace is “a frame of mind denoting both a sense of attachment and responsibility to environmental concerns in the workplace”. They use this concept in their behavioural theory because they think that the concept of commitment is comprehensive of the personal elements that can translate a person’s beliefs into action (Raineri and Paillé, 2016), and this is valid both outside and within the workplace context.

The increase of environmental commitment gives employees the possibility to improve quality and problem solving on sustainability issues (Davis et al., 2009). Prior literature provided proof that employees’ perception of the organizations’ environmental orientation has significant influence on their environmental attitude and behaviour. As confirmed by the study by Andersson and Bateman (2000), this research is funded on the belief that the positive link between environmental commitment of the organization towards the environment and employees’ proactive environmental behaviour is mediated by the environmental commitment that employees develop.

One of the important aspects of commitment production, according to Bicchieri and Mercier (2014) is the mutuality and credibility of promises and expectations that people develop among each other. These elements help to attain belief and norm change, that should be both a cause and a consequence of the transition to sustainability, recreating a circular production of environmental knowledge and culture. However, prior research on environmental commitment’s function and development focuses only on the dimension of commitment to behaviour, with Davis et al. (2009) being an exception. The other dimension that this study takes into account is the commitment to the relationship (Davis et al., 2009) with the environment, which is a totally different construct, more similar to the commitment to the partner (Rusbult, 1980). Davis et al. (2009) apply Interdependence theory (Kelley and Thibaut, 1978, Rusbult and Arriaga, 2000), one of the leading theories in interpersonal relationships psychology (Davis et al., 2009), to the environmental context, assuming that the link with the

environment can be compared to the emotional link experienced with another person. They suggest that individuals feel a subjective level of commitment to the natural environment, defined by them as psychological attachment to and long-term orientation toward the natural world (Davis et al., 2009: 174). They adapted the scale by Rusbult et al. (1998) measuring the commitment to the partner to assess individuals' level of commitment to the environment, calling the variable "interconnectedness to the environment" (validated scale used in this study).

Interdependence theory explains how a relationship will affect behaviours and motivations over time. As this theory contends, commitment is the "subjective experience of the dependence" (Le and Agnew, 2003: 38) that a person perceives towards a partner. Dependence is the extent to which people rely on a relationship partner (in this case, the environment) to meet important needs. The increase of dependence depends on the extent to which a partner gratifies important needs, and on the fact that these needs can not be gratified without the partner. There have been in the past other applications of the same theory to non-interpersonal topics, such as relationships with object or place dependence (Stokols and Novaco, 1981; Hammitt et al., 2006; Vaske and Kobrin, 2001), job commitment (Farrel and Rusbult, 1981) or school commitment (Geyer et al., 1987). Most relevant to the present work, Davis et al. (2009) have proved that, when individuals perceive a dependence on the natural environment for their own well-being, they will also experience a corresponding level of commitment to the environment. Starting from these findings, this study suggests that green work climate perceptions increase the level of environmental commitment in the workplace, that in turn increases the feeling of interconnectedness to the environment, thanks to the subjective experience of the dependence to the environment. On the basis of the above arguments, this study proposes the following:

Hypothesis 1: The indirect effect of H1a) Green work climate perception (organization) and H1b) Green work climate perception (co-worker) on Person-environment relationship through Environmental commitment is positive.

The development of informal norms that regulate individuals' behaviours inside groups is dialogical, it forms via communicating and sharing news and novel ideas to protect nature and improve the environmental performance of the organization (Afsar and Umrani, 2019). In accordance with the Social Information-Processing perspective and Social Cognitive perspective, when similar feelings, preferences, values, and ideas arise into a group of colleagues, it is likely that co-workers include such social information into their personal set of beliefs and values and modify in turn their behaviours (Grant et al., 2010). As a matter of fact, individuals are adaptive organisms: they adapt attitudes, behaviours, and beliefs to their social context (Salancik and Pfeffer, 1978).

Green work climate perceptions of the organizations and co-workers are complementary and equally necessary to influence values and behaviours of colleagues: following Afsar and Umrani (2019) “if an employee perceives his/her organization as socially responsible, he would still not engage in pro-environmental behaviour when he/she observes co-workers not engaging in pro-environmental behaviours such as turning off lights or preserving energy inside the organization premises.” (2019: 7). Therefore, it is reasonable to assume that green work climate perceptions of both organizations and co-workers are able to instil and increase both the feeling of interconnectedness with the environment and the pro-environmental behaviours in employees.

In the organizational context, there have been some attempts to study how and whether social norms are able to influence pro-environmental behaviour of the personnel. Carrico and Reimer (2011), for example, have used peer education and feedback intervention to motivate energy conservation on the workplace, a study which produced positive outcomes. Janmaimool (2017), instead, investigated “the role of social norms, organisational norms and personal norms in explaining individuals’ engagement in Waste Management Behaviours, which include waste avoidance, green purchasing, reusing and recycling and waste disposal” (2017: 184) in Bangkok’s workplaces, finding that organizational norms are more effective than descriptive norms.

Usually work setting and home setting are treated separately, and in general, PEB are studied more at home than in organizational settings (Greaves et al., 2013). A review on energy waste reduction by Abrahamse et al. (2005) reports that most research was conducted in the domestic sector, as well as in a report by Davis et al. (2009), where the review about research on pro-environmental behaviours showed that the majority of 165 articles had households and home behaviours as main focus.

Both settings are worth studying because of the difference in social interactions. The workplace constitutes a more clustered and controlled environment rather than the domestic one for many reasons. First, it is easier to target employees through low-cost motivational means, like e-mails and newsletters (Smith and O’Sullivan, 2012). Secondly, employees are more vulnerable to the influence of the colleagues’ sustainability behaviour, e.g. they can observe each other’s energy use and feel the pressure of normative influence (Carrico and Reimer., 2011). This happens despite other barriers to the sustainable behaviour which occur in the workplace, such as the absence of the bills, which undermines the financial considerations, or the impossibility to track pace of the trend of energy consumption. (Carrico and Reimer, 2011: 2). Lastly, recycling behaviour differs because households may be compelled to recycle and the responsibility of a wrong separate collection may lead to forms of payment; on the contrary, in the workplace the responsibility for misbehaviours goes to the organization, but at the same time the workplace may offer arena for performing PEB not available at home (Greaves et al., 2013) such as an easier disposal of special waste.

In addition, since the aim of this study is to analyse the internalization of environmental meaningfulness, the PEB considered for a more precise analysis are the green *innovative* work

behaviours. Innovative work behaviours in general are intended as a sophisticated (that implies intentions) behaviour of an employee composed of activities aimed at applying or introducing new solutions, ideas, processes, or procedures (Yuan and Woodman, 2010). Narrowing down the field to environmental concern, green innovative work behaviours can be seen as behaviours aimed at the generation, promotion and realization of green ideas (Aboramadan et al., 2021). Ramus and Steger (2000), in their study about eco-initiatives, show that one determinant factor of the employees' likelihood to develop and share eco-initiatives is the existence of company's environmental policies. Norton et al. (2014), instead, consistent with TNC (Cialdini et al., 1990) and related findings concerning behavioural outcomes of descriptive and injunctive norms (Smith et al., 2012), propose that only descriptive norms (green work climate perceptions of co-workers) can foster pro-active environmental behaviour (which can be ascribed to the concept of green innovative work behaviours) in presence of perceived environmental policy, while injunctive norms have effects on general environmental behaviour, because they are less salient in the lack of environmental policies. In this case, green work climate perceptions are considered as mediators between the perceived presence of an organizational sustainability policy and employee green behaviours (Norton et al., 2014). In other words, in an organization with salient sustainability policy, employees will increase their workplace green (in-role and extra-role) behaviours if they perceive that the social norms in force are green. The research of Tian et al. (2020), instead, shows green climate perceptions as moderators between pro-environmental attitude and required or voluntary employee green behaviours.

Concerning the link between commitment to the environment, considered as an internalized prioritization of the environment, and pro-environmental behaviour, Davis et al. (2009) witness that committed individuals will move beyond self-interest and act for the well-being of the environment. Green innovative work behaviour will be performed because, when an employee perceives organization supports in engaging in pro-environmental behaviour by providing necessary resources, she/he will be more likely to make extra eco-efforts (Paillé et al., 2014). In companies with an environmental-oriented management strategy and additional supportive policies in the environment, employees are more engaged in environmental concern, their commitment to the environment in the workplace will grow and in turn they are more willing to behave eco-actively in the workplace (Paillé et al., 2014; Temminck et al., 2015).

Social exchange theory provides insights to understand the interaction between green work climate perceptions and green innovative work behaviour. This theory suggests that there will be a trusting interrelationship between company and employees in the case they adhere to the rules of exchange (Cropanzano et al., 2003). As well as employees will perceive green commitment from organization and co-workers via green practices, they will reciprocate by offering new ways to deal with environmental issues (Karatepe et al., 2020). Also in this case, environmental commitment in the workplace plays a crucial role in determining the willingness to generate and implement creative and

pro-active solutions to enhance the company's environmental performance. Drawing from these reasonings, this study proposes the following hypothesis:

Hypothesis 2: The indirect effect of H2a) Green work climate perception (organization) and H2b) Green work climate perception (co-worker) on Green innovative behavior through Environmental commitment is positive.

The last variable to investigate is the role that the identification with the organization plays in the presented model. Considering the theories of Social Identity and Self-Categorization, as well as Social Exchange theory, identification with the organization can increase or decrease the motivation to transform commitment in actual pro-environmental behaviours in the workplace or in the feeling of interconnectedness with the environment.

According to Mael and Ashforth (1992) social identification is "the perception of belongingness to a group classification" (1992: 104). Consequently, organizational identification refers to the extent which an individual feels a member in a particular organization and perceives her or himself as psychologically intertwined to the fate of his or her group, experiencing its successes and failures (Mael and Ashforth, 1992). Social identity theory, in fact, states that individuals are more prone to choose activities that are congruent and coherent with salient aspects of their identities, and support in turn the institutions to embody those identities (Ashforth and Mael, 1989).

An important aspect of the variable identification with the organization proposed by Mael and Ashforth (1992) and used in this study is the inclusion of the *sentimentality*, which represents, according to them, the propensity of an individual to perceive groups as extensions of one's self. This shade of the variable may cause the increase or decrease of the effect that green work climate perceptions, via environmental commitment in the workplace, have on both the green innovative work behaviour and on the feeling of interconnectedness with the environment. Sentimentality, by definition, is the tendency to retain emotional and/or tangible links to one's past, deriving pleasure from discussing or reliving one's past (Mael, 1988). Sentimentality is different from nostalgia and posits an attachment orientation towards an organization.

When individuals feel interconnected with the environment, boundaries between self and the environment are blurred or non-existent (Davis et al., 2009), as it happens with the identification.

One of the relevant previous studies that adopted the identification with the organization to assess the relationship with the environment is the one by Schultz (2001; 2002). More precisely, Schultz adapted the self-expansion theory (Aron and Aron, 1986) to assess the inclusion of nature in the self-concept. He wanted to measure the level of inclusion of nature in the self, basing his theory on the fact that individuals who identify with the environment could be more likely to engage in pro-environmental behaviours. He found that there are correlations of the inclusion of nature in the self with both self-reported environmental behaviour and ecological worldview (Schultz, 2001).

For these reasons, identification is proposed as a moderator between green work climate perceptions and both green innovative work behaviour and the relationship with the environment.

Hypothesis 3: Organizational identification strengthens the indirect effect of H3a) Green work climate perception (organization) and H3b) Green work climate perception (co-worker) on Person-environment relationship through Environmental commitment.

Hypothesis 4: Organizational identification strengthens the indirect effect of H4a) Green work climate perception (organization) and H4b) Green work climate perception (co-worker) on Green innovative behavior through Environmental commitment.

Summary of hypothesis:

Mediation

Hypothesis 1: The indirect effect of H1a) Green work climate perception (organization) and H1b) Green work climate perception (co-worker) on Person-environment relationship through Environmental commitment is positive.

Hypothesis 2: The indirect effect of H2a) Green work climate perception (organization) and H2b) Green work climate perception (co-worker) on Green innovative behavior through Environmental commitment is positive.

Conditional

Hypothesis 3: Organizational identification strengthens the indirect effect of H3a) Green work climate perception (organization) and H3b) Green work climate perception (co-worker) on Person-environment relationship through Environmental commitment.

Hypothesis 4: Organizational identification strengthens the indirect effect of H4a) Green work climate perception (organization) and H4b) Green work climate perception (co-worker) on Green innovative behavior through Environmental commitment.

4.3 Methodology

4.3.1 Participants and Procedure

The present study was carried out in 5 organizations operating in the manufacturing sector in Italy. Participation in the research was on a voluntary basis. In each enterprise, workers at different

hierarchical levels (operators, supervisors, middle managers and managers) were invited to take part in the research. After discussing the goals of the research with the human resources manager, we distributed the questionnaires with the help of some of the department's scholars. All participants were guaranteed anonymity. Data were collected in three waves (T1, T2, T3), each separated by a month lag. In the first wave (T1), we collected data on demographic variables, hierarchical position and Green work climate perception; in T2 we measured Environmental commitment and Organizational identification; and in T3 Green innovative behaviour and Person-environment relationship. Collecting data at different time points alleviates common method variance (CMV) (Podsakoff et al., 2003) and provides more robust evidence about the causal relationships.

In total, we distributed about 750 questionnaires. In T1, 602 were correctly filled out. Of these, 450 were also completely filled out in T2 and 271 in T3.

The average age of respondents was about 40 (SD = 11.45), the minimum 20 and maximum 62; about 56% were male. The average job tenure was 8.64 years (SD = 8.45). About 36.5% of respondents have a bachelor's degree or more, 50.2% a high school diploma, 13.3% a middle school diploma or less. About 62.7% are workers with production duties, 25.1% are supervisors, 10.4% middle managers and 1.8% higher level managers.

4.3.2 Measurements

The respondents' native language was Italian; thus, each measuring scale was translated by a professional translator. To validate the translation, we used the back translation method (Brislin et al. 1973).

Green work climate perception. Green work climate perception was assessed through an 8 items scale developed by Norton et al. (2014). This scale has two dimensions, I) "organization" and II) "co-workers", which measure the employees' perceptions of policies and practices relating to environmental sustainability and demonstrated respectively by their employing organisation and co-workers. A sample item for the dimension "organization" was "Our company is worried about its environmental impact" (Alpha = 0.90). A sample item for the dimension "co-workers" was "In our company, employees care about the environment" (Alpha = 0.90).

Organizational identification. We measured Organizational identification by using a six-item scale adapted from Mael and Ashforth (1992). A sample item was: "When someone criticizes (name of Organization), it feels like a personal insult". The alpha was 0.97.

Environmental commitment. Environmental commitment was measured through a eight-item scale developed by Raineri and Paillé (2016). A sample item was: "I really care about the environmental concern of my company". The alpha was 0.97.

Person-environment relationship. We measured Person-environment relationship through a eleven items scale developed by Davis et al. (2009). A sample item was “feeling a connection with the environment is important to me”. The alpha was 0.97.

Green innovative work behavior. Green innovative work behavior was assessed through the six-item scale used by Aboramadan et al. (2021) adapted from Scott and Bruce (1994). A sample item was “I promote and champion green ideas with other”. The Cronbach’s alpha for this scale was 0.95.

Control variables. To rule out the potential confounding effects of socio-demographic variables, several variables, namely gender, age, job tenure and education and hierarchical level were controlled for.

4.3.3 Analytical strategy

Since the inclusion of multiple Xs in a mediation model implies possibility that highly correlated Xs will cancel out each other’s effects, especially when they are highly correlated (Hayes 2013), we preferred to develop two different models (see figure 7 at p. 112 of the Appendix): Model A for the “organization” sub-dimension and Model B for the “co-worker” sub-dimension of Green work climate perception. In order to test the mediation hypotheses, we used “Model 4” of the PROCESS macro for SPSS (Hayes 2013) adopting the bootstrapping method with 5,000 replications; moderate mediation models were tested using “Model 14” of the same macro. We inspected the conditional indirect effects of Green work climate perception on Person-environment relationship and Green innovative behaviour at low (- 1 SD) and high (+ 1 SD) levels of Organizational identification, as well as the index of moderated mediation. The significance of the contingent effect is demonstrated if the index of moderated mediation (confidence interval) did not include 0.

In each of the models tested we used gender, age, position, tenure, and organization as control variables.

4.4 Results

4.4.1 Preliminary Analyses

Before testing our hypotheses, we studied the structural validity of the scales used in the analysis. We performed a confirmatory factor analysis in AMOS. The proposed model, the six-factor model in which Green work climate perception (organization), Green work climate perception (co-workers), Environmental commitment, Organizational identification, Person-environment relationship and Green innovative behaviour load on their respective factors exhibits an acceptable fit [$\chi^2 = 1356,30$ (df = 650), CFI = 0.94, IFI = 0.94, TLI = 0.93, RMSEA = 0.06].

Other competitive models, i.e. a five-factor model (in which all items related to Green work climate perception loaded on a single latent variable), $\chi^2 = 1849.91$ (df = 655), CFI = 0.90, IFI = 0.90, TLI

= 0.88, RMSEA = 0.08], and also a four-factor model where we constrained all items related to Green work climate perception to load on one factor and Environmental commitment and Person-environment relationship to load on another factor $\chi^2 = 3935.79$ (df = 659), CFI = 0.71, IFI = 0.71, TLI = 0.69, RMSEA = 0.14], show a poorer fit of the data.

Because the data were collected from self-reported questionnaires measured by a single source, there was a risk that the results of the survey might have the common method bias. Thus, we performed Harman's one-factor test to address the CMV issue. The results of the factor analysis did not indicate a single-factor structure.

Means, standard deviations, correlations and internal consistency reliabilities are reported in table 11.

4.4.2 Hypotheses testing

Results support hypothesis 1 (see table 12 in the Appendix), as the indirect effect of Green work climate perception (organization) H1a) and Green work climate perception (co-worker) H1b) on Person-environment relationship through Environmental commitment is respectively $\beta = 0.27$ [0.18, 0.40] and $\beta = 0.25$ [0.15, 0.38]). Results also support hypothesis 2, as the indirect effect of Green work climate perception (organization) H2a) and Green work climate perception (co-worker) H2b) on Green innovative behavior through Environmental commitment is respectively $\beta = 0.32$ [0.22, 0.44] and $\beta = 0.28$ [0.17, 0.39]).

As shown in table 14 (Appendix), Organizational identification moderated neither the indirect effect of Green work climate perception (organization) (index = -0.01; CI = [-0.07; 0.06]), nor the indirect effect of Green work climate perception (co-workers) (index = -0.01; CI = [-0.07; 0.05]) on Person-environment relationship via Organizational identification. Thus, hypothesis 3 is not supported.

Last, we found support for hypothesis 4, as Organizational identification strengthened the indirect effect of Green work climate perception (organization) (index = 0.05; CI = [0.01; 0.09]) and Green work climate perception (co-workers) (index = 0.04; CI = [0.01; 0.07]) on Green innovative behavior via Environmental commitment.

We used the Johnson-Neyman technique to plot the conditional indirect effect of Green work climate perception on Green innovative behavior via Organizational identification (figure 7).

The next section will provide more extensive explanation of the findings.

4.5 Discussion

This study present and tests a model to demonstrate that a workplace perceived as “green” is able not only to influence intentional and creative work PEB (green innovative work behaviours), but also to

increase the feeling of interconnectedness with the environment (person-environment relationship). The data were obtained from employees working in Italian firms through a longitudinal survey.

The analyses of results revealed the influence of green work climate perceptions of the organization and co-workers, i.e. green social norms in the workplace, on both the green innovative work behaviours and the person-environment relationship of employees, mediated by environmental commitment in the workplace (supporting H1 and H2). While the relationship between the mediator (ECW) and green innovative work behaviours is moderated by the variable OID (supporting H4), the relationship between ECW and the dependent variable PER is not moderated by the OID (not supporting H3).

The results are in line with previous research that found a direct link between perceived environmental social norms and pro-environmental behaviours in the workplace, summarised in the previous subsections, and add on the cultural (and educational) effects that environmental policies and practices in the workplace may have on the private sphere of people. There are many considerations that derive from these results.

First, at the best of the author's knowledge, this is the first attempt that wants to assess whether green work climate has effect on environmental personal culture of employees, considered as antecedent of pro-environmental behaviour. It is observable in the analysed literature that the studies on green work climate perceptions conducted so far identified social norms as mediators or moderators and not as an independent variable (Smith et al., 2012; Norton et al., 2014; Tian et al., 2020). In the model built for this study, instead, green work climate perceptions are set as the primary condition that influences environmental commitment of individuals in the workplace and, in turn, both their proactivity to approach environmental problems with green innovative work behaviours and their feeling of interconnectedness with the environment. This is justified by the fact that the objective of this study is to specifically detect the effects that the workplace has on shaping the sustainability identity of people, which persists in daily life, and not identifying the antecedents and determinants of pro-environmental behaviours in the workplace like in most of the analysed literature.

In this regard, the decision of using green innovative work behaviours and the variable person-environment relationship is due to the need to investigate the internalization of green identity of organizations and co-workers. As promoted by Davis et al. (2009), dependence and interconnectedness with the environment may favour more pervasive and long-lasting transformation of motivation. The development of an "ecological self" (Bragg, 1996) or of an "ecology of mind" (Bateson, 1972) would comprise the rhetorical power of not only changing PEBs of people but also of catalysing the transformative change of society.

Following this logic, the authors were surprised in discovering that H3 is not supported, while H4 is supported. Identification with the organization does not strengthen the feeling of interconnectedness with the environment, but strengthens the green innovative work behaviours. The authors have justified this result with the fact that, while the person-nature relationship entails an emotional attachment, identification with organisation does not. Since, according to Mael (1992) the only

emotional tie of organizational identification is sentimentality, this doesn't intervene in the increasing of the personal relation to the environment. This assumption makes the model even stronger because it can demonstrate, at least partially, that a green social norm in the workplace, in presence of environmental commitment, have effect on personal values in general regardless of the specific work setting, independently from the centrality in their self-concept of the perceive membership of the organization. Nonetheless, Mael and Ashforth (1992) identify affection and behaviours as antecedents and consequences of identification, not as current components of it. Moreover, identification is "organization-specific" (Mael and Ashforth, 1992: 105), while commitment may not be.

On the contrary, identification with the organization plays a role in fostering the association between environmental commitment and green innovative work behaviour (H4). Consistent with the Social Identity theory and Social Exchange Theory, when a person does not identify with the organization where she or he works, it is less likely that he or she is positively influenced by the social norms in force in the organization and that reciprocates the organization with green innovative ideas or practices. When the identification is high, individuals support the organization embodying those identities that characterize the organization itself (Mael and Ashforth, 1992).

Compared to previous literature, this study does not rely only on one theory to justify the model but tried to implement several theories that may explain the complexity of the social process of environmental culture diffusion.

Finally, environmental commitment in the workplace has proved to be a good predictor of attachment and responsibility to environmental concerns, as suggested by Raineri and Paillé (2016). However, they only focus on the organizational context, while commitment to the environment in the workplace may anyway encompass at a general level those personal elements that are able to translate a person's beliefs into action (Raineri and Paillé, 2016),

4.6 Conclusions

Nowadays, organizations play a large role in the definition of people's identity and culture, not only through the production and consumption models that affect consumers, but also through the regulations in force and the practices implemented in the workplaces that affect "internal consumers" (Smith and O'Sullivan, 2012: 469), i.e., employees.

The contribution of this chapter can be summarized as follows. First, a theoretical link between work environment and personal and social development is established by attributing to green work climate perceptions the role of main tool for spreading commitment to the environment. Secondly, an insight into multidisciplinary approaches to a social and environmental problem is provided by linking sociological, environmental, and organizational theory. Third, this model could serve as a basis for

further research on social norms to shape or engender people commitment, and to reform current organizational policies considering the power of informal and cultural rules.

People in organization may have not enough opportunity of proactivity in environmental issues, especially when they are not internally concerned (Boiral, 2005; Paillé et al., 2014; Ramus and Steger, 2000). Consequently, it is more likely that employees participate in environmental affairs when the firm includes in its practices a clear signal of interest towards environmental protection, in other words when the firm institutionalizes environmental sustainability. According to Raineri and Paillé (2016), when ecological concern is a salient corporate value, organizational policy could probably inspire employee environmental commitment.

A work climate perceived green could have a positive influence on the commitment to the environment of employees in the workplace, and a subsequent influence also on their personal culture, because it concerns the relationships that individuals build in their daily social environment. Daily dealing with a work climate perceived as environmentally respectful and protective could expose individuals to stimuli, which push the social dynamics towards a higher interest and engagement in environmental sustainability, creating virtuous circles that follow the Social Exchange Theory (SET) (Cropanzano and Mitchell, 2005).

The explicit attempts to control behaviours with a top-down approach, e. g. government's strong measures or companies' reinforcements, may produce a countereffect because they impact the controlled motivation and not the autonomous one (Pelletier and Aitken, 2014), which is the one that leads more likely to intentional and interested PEB (Hicklenton et al., 2019). Promoting practices that have effects on environmental social identities of employees may result more effective, most of all when they consider the emotional tie to that particular group (the workplace or the group of environmentally concerned workers) to be central to their self-concept (Leaper, 2011).

However, this study has not investigated what practices in particular have effect more on the identity than on the PEBs. This could be an interesting input for further research, for example comparing different offices with different perceived environmental identities and their consequences on individual environmental identities, since, following Liebkind (2004), the membership increases ingroup bias. The interesting aspect of this comparison comes from the Social Identity Theory (Tajfel, 1981), that states that when an individual's social identity is high, their perception of the self and the others becomes *depersonalised*, leading to self-stereotyped group members (Opatow and Brook; 2003). This depersonalisation is fascinating because it deprives the personal identity of its intentions, letting the social identity and norm taking over the individual. Seeing as how following the TPB (Ajzen, 1985; Ajzen, 1991) intentions are fundamental to the enactment of meaningful PEBs, it creates a paradox. This paradox is only partially disentangled in this study, because the model considers general green social norms (and not entire environmental social identities) to be influent on the personal relationship with environment. In this regard, also in-group and out-group

intentions on environmental behaviour in the workplace (e. g. internal employees vs. suppliers or external consultants) in case of threat on environmental social identity (Dono et al., 2009).

4.6.1 Limitations

Although this chapter draws its conclusions basing on well-established theories and solid results, some undeniable limitations may motivate further research.

The first limitation is that the personal characteristics of people are not considered. There are many studies in the literature that consider the case when employees' commitment to the natural environment exceeds the organization's commitment to the environment because of personal beliefs (Ciocirlan, 2016; Lee et al., 1995), that in this study were not investigated. On the contrary, the morality of individuals may be an important factor moderating the impact of social norms on personal environmental commitment, in and outside the workplace, or even the main factor causing environmental commitment. This study thus provides a partial vision, the literature suggests that there are many other variables that can intervene in this process.

It is not considered how the employees values/behaviours change over time (Bissing-Olson et al., 2013), something that can be fundamental in the process of developing a certain cultural trait. A panel, with repeated observations, would provide more precise results, and further studies should study the effect of a normative change (new policy, newcomers...) over time.

The SET (Kelley and Thibaut, 1978), used to justify the feeling of interconnectedness with the environment, is a bit old and it is strictly linked to certain specific aspects of culture that are not deeply treated in this research. The relationship with nature differs from one population to another, instead. Further research may focus on applying new theories to investigate the relationship with the environment (such as the liquid society by Bauman) and maybe comparing them with other societies on environmental data (environmental performance) and cultural metrics (Hofstede). This would help also to overcome the selection limitation, that does not provide representation because of the fact that the organizations studied are only 5 and they belong all to Italy.

Another relevant aspect that was not considered in this study was the arise of smart working in the recent years, that may alter the results. Although work climate is a psychological climate (James et al., 2008), this does not mean that it is not influenced by the physical environment; moreover, smart working tremendously decreases the level of control on or emulation of behaviours, and in turn the extent to which social norms impact identity and behaviour.

5. Voluntary and mandatory environmental policies adoption:

Content analysis of Italian Sustainability Reports

5.1 Introduction to the third step

In the introduction of this manuscript (Chapter 1), the first assertion on which the Leitmotiv of this study develops says that “the ecological sustainability of firms is co-influenced by external social and regulatory pressures and internal features, two forces that shape firm’s strategy and decision making”. While the first two steps of this study focus on the environmental internal dynamics of corporate culture, this third step aims at investigating the interaction between environmental international policies and firms’ environmental efforts.

The development of environmentalism as a cultural trait, drawing on Schudson’s theory (1989), passes through the institutionalization. In the context of the workplace, this institutionalization can take place through the adoption of environmental policies. Recalling the results of the qualitative step of this research (Chapter 3), one of the environmental policies that succeeded the most in instilling awareness and starting environmental practices – achieving this research’s objective – was the drafting of the *sustainability report*⁸. Therefore, the researcher decided to conduct a content analysis of the sustainability reports to compare employees’ self-reporting of environmental culture to their ESG disclosure guided by European regulations.

The drafting of sustainability reports has been imposed to large listed European companies by the Non-Financial Disclosure Directive (Directive 2014/95/EU, 2014). The accounting literature on sustainability reports is growing, because it is a policy tool that aims at increasing sustainability standards and performance of firms. The literature on non-financial reporting is still underdeveloped in comparison to the literature on financial reporting, therefore, more research is needed in this context (Cuomo et al., 2022). Venturelli et al. (2019) and Christensen et al. (2021), moreover, state

⁸ See p. 35 for the definition.

that ex-post effects of the Directive and the mandated non-financial disclosures still need observations to assess their effectiveness.

In this chapter, a more in-depth focus about this practice is provided, since new European regulations are imposing this as a requirement to a more extended pool of firms, including SMEs. This step is mainly linked to the third subobjective of this study, which is investigating how the drivers of employees' environmental commitment communicate with the forthcoming international environmental policies, to understand both how firms respond to those policies and whether they are ready to implement them. Even though this step is at a firm level, sustainability reports have been written by people.

Only three firms on nine are currently yearly drafting the sustainability reports, therefore the analysis was performed on three reports from the same year, the 2020, since the interviews were performed in that period.

The three firms at issue are very different from each other, but they all achieved a high evaluation in the environmental culture total score in the qualitative step. This makes the comparison of their SRs interesting from two perspectives: a. to study different ways to implement an environmental policy; b. to explore how they display environmental culture. This would provide insights for policymakers about the efficacy of this environmental policy.

To allow an adequate comprehension of the topic, the chapter is structured as follows: after this introductory first section, the second section will provide a political and historical contextualisation of the policies, to understand their evolution over time. The third section will draw from institutional and accounting literature to provide theoretical tools and definitions, crucial for the understanding of the methodology. Subsequently, the fourth methodological section will explain methods and techniques used to perform the content analysis. Finally, results and discussion will precede the conclusion of the chapter and of the entire manuscript.

5.2 Political and historical contextualisation of Sustainability Reporting

In the recent decades, investors and stakeholders' interest in firms engaging in CSR activities has grown dramatically. Socially responsible investing (SRI) has increased, on turn, and this led to a proportionate need for corporates to share more information about their socially responsible activities to gain competitiveness (Holder-Webb et al., 2009). The introduction of European regulation on non-financial disclosing – Non-Financial Reporting Directive (NFRD hereafter) and Corporate Sustainability Reporting Directive (CSRD) – have materialized this need, setting a standard benchmark to aspire throughout all member states. The result of this political move is the mandate publication of a non-financial statement for a certain group of European target firms, in order to provide, to investors and stakeholders, a tool to guide their decisions. This tool may be used not only

by firms obliged to comply with the law, but also by firms that do not fall under the Directive's scope, which can decide to voluntarily disclose non-financial information as a legitimacy gaining strategy (Buhr et al., 2014; La Torre et al., 2018). An interesting aspect of the new proposal CSRD is that it enlarges the target firms, including also Small and Medium Enterprises (SMEs), that were not considered before. SMEs are less likely to invest in their Environmental, Social, and Governance (ESG) aspects of their activities due to a smaller number of available resources (Cuomo et al., 2022; Christensen et al., 2021), and this forced innovation, caused by regulations, makes the exploration of its dynamics crucial to assess the European capability of achieving its ESG targets.

Following Breijer and Orij (2022), transparency and comparability among different reports are two valid indicators to understand real beliefs and efforts that firms are doing towards green and fair transition. Therefore, the obligatoriness of non-financial disclosure (NFD hereafter) may on one hand increase stakeholders' awareness on unpreparedness of non-green firms (also called 'brown firms'), and on the other hand push resisters to use avoidance strategies, such as boilerplate language, in case of weak incentives to share significant non-financial disclosures (Breijer and Orij, 2022; Christensen et al., 2021). Christensen et al. (2021) suggest that specific standards can help to limit boilerplate strategies. But the directive currently in force (NFRD) does not have clear guidelines on how to disclose, leading to an increased unclarity because of the confusion over methodology instead of decreasing information. However, a study by Cuomo et al (2022) affirms that the directive led to an increase of CSR transparency and performance, most of all in smaller firms.

5.2.1 History of sustainability reporting in Europe

The Directive 2013/34/EU, published on the n. 182/19 of the Official Journal of European Union, aims at substituting the previous accounting directives 78/660/CEE e 83/349/CEE (a.k.a. IV and VII EEC Directives). They have been modified over time, but date back to the 1978 for the financial statement, and to 1983 for the consolidated financial statement. This makes them too obsolete and not adequate for responding to the actual accounting needs of societies. Following the principle "think small first", European Commission wants to: a. reduce/simplify administrative burden, most of all in small firms; b. increase clarity and comparability of financial statements, most of all for firms that have intense international activity; c. protecting essential needs of users, keeping necessary accounting information; d. improving transparency of payments of extractive and deforesting companies to governments (ODCEC, 2020). Based on these principles, the Directive 2013/34/EU was published, transposed by Member States by July 2015 and applicable from financial statements of the year 2016 onwards.

One year later, the Directive 2013/34/EU was amended with the Directive 2014/95/EU (also called the NFRD, "Non-Financial Reporting Directive"), that set the obligation for all large European listed

companies to disclose information on social and environmental efforts. The non-financial disclosure can be integrated in annual report or published in a separate one, usually called sustainability report (Directive 2014/95/EU, 2014). As read on the text of the directive, “the Commission identified the need to raise to a similarly high level across all Member States the transparency of the social and environmental information provided by undertakings in all sectors. This is fully consistent with the possibility for Member States to require, as appropriate, further improvements to the transparency of undertakings' non-financial information, which is by its nature a continuous endeavour” (Directive 2014/95/EU, 2014: L 330/1).

With the aim to increase environmental and social transparency standards without hindering European economic activities, the Directive was shaped as a soft regulation. A soft regulation is a non-binding law, using a set of quasi legal instruments (Koutalakis et al., 2010), that is imposed by public entities and not private entities (the case of the soft regulation), but lacks uniformly binding direct effects (the case of hard regulation) (Ramajoli, 2016). More specifically, the NFRD imposes the duty for listed large companies to disclose financial and non-financial information but does not provide a specific and standardised NFR framework to follow (Mittelbach-Hörmanseder et al., 2021; Breijer and Orij, 2022). The only guideline can be found in International Financial Reporting Standards (IFRS) mandated by European Union, to lead the quality of reporting and allow comparability of financial statements across the countries. The approach adopted by the Directive is called ‘comply or explain’, according to which firms can choose to disclose information or not, but with the obligation to explain the reasons in case they choose not to comply with the law (Alliance for Corporate Transparency, 2019). This approach can leave flexibility and time to all firms to comply with the law, but, on the other hand, makes the assessment of the quality of reports, of the transparency and of comparability across countries uncertain (Cuomo et al., 2022).

Because of this uncertainty, in recent decades diverse internationally recognised non-financial frameworks and standard-setting institutions have been established, generating consequently many different sustainability reporting practices (Gjølberg, 2009; Halkos and Skouloudis, 2016). The international NFR frameworks are more than 30, but only nine institutions are considered appropriate to respect the directive’s standards (Breijer and Orij, 2022, FEE, 2016; La Torre et al., 2018): the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), the Economic Co-operation and Development (OECD), the International Integrated Reporting Council (IIRC), the United Nations Global Compact (UNGC), the European Federation of Financial Analysts Societies (EFFAS), AccountAbility (AA), the International Organization for Standardization (ISO), and the Federation of European Accountants (FEE).

The differences amongst these frameworks are many, but one criterion to distinguish them is their target: they can be oriented to investors, with the objective of attracting investments, or to multi-stakeholders, with the aim of communicating and share value with all the stakeholders connected to the firm. According to the literature, multi-stakeholder orientation is used most of all when firms

want to gain or repair legitimacy (Buhr et al., 2014; La Torre et al., 2018) and investors orientation when firms want to minimise negative capital market effects (Breijer and Orij, 2022).

Framework	Year	Orientation	Motivation	Source
SASB	Since 2011	Investor-oriented	'SASB's mission is to develop and disseminate sustainability accounting standards that help public corporations disclose material, decision-useful information to investors'	SASB (2021)
IIRC	Since 2010	Investor-oriented	'The primary purpose of an integrated report is to explain to providers of financial capital how an organization creates, preserves or erodes value over time'	IIRC (2021)
OECD	Since 1999	Investor-oriented	'By transforming the impact of companies on society, the Guidelines aim to reshape investment choices by adding a whole new perspective – non-financial performance'	OECD (2021), FEE (2016)
EFFAS	Since 2010	Investor-oriented	'KPIs for ESG reflect requirements of economic stakeholders in general and investment professionals in particular. DVFA and EFFAS as professional associations represent investment professionals i.e. individuals who manage or evaluate investments or credit risks as professionals'	EFFAS (2021)
GRI	Since 1997	Multi-stakeholder-oriented	'The GRI Standards enable any organization – large or small, private or public – to understand and report on their impacts on the economy, environment and people in a comparable and credible way, thereby increasing transparency on their contribution to sustainable development'	GRI (2021)
UNGC	Since 2000	Multi-stakeholder-oriented	'The UN Global Compact's Ten Principles are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption'	UNGC (2021)
ISO	Since 2010	Multi-stakeholder-oriented	'This International Standard was developed using a multi-stakeholder approach involving experts from more than 90 countries and 40 international or broadly-based regional organizations involved in different aspects of social responsibility'	ISO (2021)
AA	Since 1999	Multi-stakeholder-oriented	'The AA1000 was developed using a broad-based, global and multi-stakeholder process'	AA (2021)
FEE	Since 2015	Multi-stakeholder-oriented	'CORE & MORE aims to provide the company's corporate story and include information of interest to a wide and general audience in one single comprehensive report. [...] To make the change happen, experimentation could aid developing a non-traditional, more innovative manner of reporting that could best accommodate the needs of a company and a growing audience of stakeholders'	FEE (2016)

Note: SASB (Sustainability Accounting Standards Board), IIRC (International Integrated Reporting Council), OECD (Organisation for Economic Co-operation and Development), EFFAS (European Federation of Financial Analysts Societies), GRI (Global Reporting Initiative), UNGC (United Nations Global Compact), ISO (International Organization for Standardization), AA (AccountAbility), FEE (Federation of European Accountants).

Figure 8. From the table Categorisation non-financial reporting frameworks into 'investor-oriented' and 'multi-stakeholder-oriented'. Source: Breijer and Orij (2020)

According to La Torre et al. (2018), in comparing the frameworks, many inconsistencies and differences among the reporting practices can be detected. The lack of harmonization among those practices hinders the comparability of non-financial statements and makes difficult for stakeholders to clearly assess the sustainability performance of companies (La Torre et al., 2018; Breijer and Orij, 2022), decreasing the efficiency of the Directive (Venturelli et al., 2019; La Torre et al., 2018).

5.2.2 *The transposition of the directive in Italy*

In Italy, the incorporation of the European directive was effective from 2017 for all large listed companies (more than 500 employees) through the publication of the Legislative Decree No. 254/2016. According to the Ministry of Economy and Finance, the most critical issue concerned the choice of the most efficient and effective framework to perform non-financial disclosure (Doni et al., 2020). However, Italian companies usually refer to IIRC (International Integrated Reporting Council) and GRI (Global Reporting Initiative) to disclose non-financial information (Assonime, 2017).

According to a report on non-financial reporting of Italian companies (CONSOB, 2018), in 2018 a non-financial statement was published by 151 Italian large listed companies, 83 of which had already voluntarily published a report on non-financial information in 2017.

5.2.3 *The current situation*

With the aim of decreasing the uncertainty and inconsistency of the NFD, European Commission decided to amend the NFRD with the Corporate Sustainability Reporting Directive (CSRD), published on the 20 June 2022, which is finalized at extending the duty of disclosing non-financial information to all large companies and all companies listed on regulated markets, including SMEs (except listed micro-enterprises) with mandated assurance (EU, 2021). The CSRD increases the precision of reporting requirements provided by new EU sustainability reporting standards and demands companies to digitally “tag” information, making reports machine readable⁹.

The new CSRD will take effect on different deadlines according to the different types of firms. Undertakings that are already subject to the NFRD should start implementing it on 1 January 2024; the ones that were previously not included have a later deadline (i.e., 1 January 2025 for large companies; 1 January 2026 for listed SMEs, for small and noncomplex credit institutions and for captive insurance undertakings). The number of companies that will be concerned by the regulation will go from 11,700 of the previous directives to more than 50,000 enterprises with the new regulation, covering the 75% of total EU’s companies turnover (EC, 2022; Cleary Gottlieb, 2021).

⁹ These requirements should feed into the work on digitalisation announced by the Commission in its Communication “A European strategy for data” and in the Digital Finance Strategy for the EU. They would be useful also to help to perpetuate the European single access point required by the capital markets union (CMU) action plan, that wants to build a European single market for capital.

The EU new reporting standards will be developed by the European Financial Reporting Advisory Group (EFRAG). Under the encouragement of European Commission, EFRAG is a private association established in 2001 with the aim of serving public interest. The standards developed by EFRAG will be tailored to EU policies and built on existing and emerging international standardization initiatives and have been subject to a period of public consultation (ended in August 2022). The public consultation is organized by EU to have feedbacks from constituents about the overall process surrounding the new directive.

Between January and April 2022, EFRAG released various working papers on the ESRS defined Exposure Drafts (ED). These EDs are the first set of standards that follow the CSRD proposal and cover environmental, social and governance matters. These standards are 13 and include both cross-cutting and topical standards (fig. 1). In addition, the standards architecture foresees the publication of sector-specific standards and standards proportionate to small and medium-sized enterprises (SMEs) that are not yet included in the public consultation. However, there is still negotiation among European Council, European Parliament and the Council of European Union about the proposal that can lead to its rearrangements.

CSRD and EFRAG standards are not the only regulations that companies are required to follow for the production of their non-financial statements. Concerning environmental sustainability, the Council of Europe and the European Parliament made a political deal on a European classification system for sustainable economic activities: the Taxonomy Regulation (EC, 2020). According to the CSRD (2022), “the undertakings added to the scope of the reporting obligations in Article 19a or Article 29a will also have to comply with Article 8 of the Taxonomy Regulation” (Proposal 2021/0104(COD), 2022: 12). The Taxonomy defines to what extent companies’ economic activities are associated with environmental sustainability (EC, 2020), based on criteria provided by the Technical Expert Group on Sustainable Finance (TEG) and the new Sustainable Finance Platform. In 2019 the TEG published a report proposing criteria, for 67 different economic activities, that assess the activities’ environmental performance with metrics, e.g., water use or GHG emissions (EC, 2020: 85).

5.2.4 The impact of the introduction of NFRD on European firms: theoretical framework

The introduction of NFRD has provoked direct and indirect consequences on European firms’ non-financial reporting behaviours. As a matter of fact, the Directive 2014/95/EU was not the first attempt of European Institutions to push companies towards non-financial issues disclosure¹⁰: one example is the Directive 2001/453/CE on “Recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of EU companies”¹¹, that already provided definitions and

¹⁰ See <http://www.gruppobilanciosociale.org/pubblicazioni/standard-gbs-2013-principi-di-redazione-del-bilancio-sociale/>, p.7-8

¹¹ <https://www.eea.europa.eu/policy-documents/2001-453-ec-european-commission>

evaluation criteria of environmental accounting components. For this reason, many countries such as Finland, Denmark, or Italy, had already adopted sustainability reporting laws (Brockett and Rezaee, 2012). However, with the NFRD the duty has been extended and standardized to all member states.

To understand how firms perform standardisation and compliance to external institutional pressures, the concept of isomorphism, drawn from institutional theory, may result useful (DiMaggio and Powell, 1983; Scott, 1995; Higgins and Larrinaga, 2014; Korca et al., 2021). Isomorphism refers to the process of organizations' normative and structural changes consequent to institutional constraints, and consists of three types: *mimetic*, *coercive* and *normative* (DiMaggio and Powell, 1983). The first occurs when, in facing uncertainty, organizations emulate one another, usually considering as a benchmark the one perceived as more successful and legitimate (DiMaggio and Powell, 1983; Tolbert and Zucker, 1983). The coercive isomorphism is a consequence of strict regulations and laws and requires rule setting, impact monitoring and provides subsequent non-compliance punishments (DiMaggio and Powell, 1983; Higgins and Larrinaga, 2014). The last type is the normative isomorphism, which is usually associated with professional norms and values that drive individuals' behaviours (DiMaggio and Powell, 1991).

According to the literature (De Villiers et al., 2014; Korca et al., 2021) all three mechanisms can occur concurrently: the influence of external rules over a long period drives organizations towards the creation of certain practices that automate over time into professionalised norms within the organization. An example of coercive isomorphism is the emissions limits imposed on firms. An example of normative isomorphism is the institution of welfare standards into a workplace. In the case of the Directive 2014/95/EU, mimetic isomorphism could be traced, for example, into the fact that proactive firms pre-emptively started to disclose on a voluntary basis environmental and social information even before the NFRD was imposed, expecting more stringent future regulations of environmental, social, and governance aspects (Grewal et al., 2019). Another example of mimetic isomorphism is that most companies in Europe have chosen to disclose through the GRI framework (Alliance for Corporate Transparency, 2019).

The reasons why firms choose to voluntarily disclose non-financial matters are several. According to economic theory, a firm discloses if its management expects that benefits exceed costs or to differentiate themselves from inferior performers. According to socio-political theory, the survival of an organization is allowed by the willingness of society. For example, polluting industries have stronger incentives to disclose because they are subject of legitimacy threat. Investors are expected not to favour firms with poor non-financial performance because they are more likely to incur costs for product and process improvements (i.e., energy efficiency increase) or for non-compliance penalties (Grewal et al., 2019).

Voluntary adoption is one possible reaction to the arrival of a new regulation, but not the sole possibility. In fact, Breijer and Orij (2022) in their study divide firms in *voluntary adopters* – firms

performing non-financial disclosure before the NFRD – and *resisters* – firms that withhold non-financial reporting until it becomes mandatory. The reporting behaviour of these two categories have been extensively studied to identify drivers and consequences of this phenomenon, in relation to the accomplishment of EU objectives, i.e., increasing transparency, consistency and comparability of non-financial information in undertakings of all sectors and throughout the Union (Directive 2014/95/EU, 2014).

The first difference that can be detected between resisters and voluntary adopters concerns the choice of the framework used to disclose non-financial information. As stated in the previous section, while the target of the directive is imposed by the soft regulation, the choice of the framework used to disclose is not regulated. According to the study by Breijer and Orij (2022), voluntary adopters are more likely to use multi-stakeholder-oriented frameworks (such as GRI's) because their aim is to seek legitimacy, while resisters predominantly use investor-oriented frameworks (such as SASB's), moved by capital market fluctuations.

Despite the fact that SRs are accounting tools oriented to external recognition (Angus-Leppan et al., 2010; Moon and Matten, 2008; Porter and Kramer, 2017; Pizzi et al., 2022), and classified as an extrinsic motive driven by external pressure (Constantinescu and Kaptein, 2020), the study by Breijer and Orij (2022) suggests that the approach of voluntary adopters is more ideological than the one of resisters: resisters are more likely to use boilerplate language, which is more generic and standardised, with the aim of hiding poor non-financial performance, while voluntary adopters are keener to comply with the spirit of disclosing non-financial information (Breijer and Orij, 2022). However, after the implementation of the NFRD, voluntary adopters started to complement their non-financial reports with investor-oriented frameworks to allow the comparability with other firms, following mimetic isomorphism theory. This led to an increase information asymmetry instead of clarity (Breijer and Orij, 2022; Christensen et al., 2021), hindering the achievement of the EU goal of transparency.

Concerning the objective of consistency of non-financial disclosures, Cuomo et al. (2022) state in their research that non-financial reporting regulation led to a quantitative increase of reporting, but not to a consequent proportional qualitative improvement of CSR performance. The authors speculate that it may depend on the soft regulation that made the disclosing to a certain extent voluntary. However, mandatory disclosure is more likely to lead to real CSR performance improvements than voluntary disclosure (Christensen et al., 2017; Cuomo et al., 2022).

Other interesting aspects highlighted by previous literature on non-financial disclosing (Jackson et al., 2020; Christensen et al., 2021; Cuomo et al., 2022) concern the positive effects that external consultants, the strength of the legal system, the size of the undertaking and investments in research and development have in moderating the imposition of the NFRD and CSR performance and transparency. The last two aspects are particularly interesting ahead of the proposal of the new

CSRD. According to the study by Cuomo et al. (2022), the Directive has increased CSR performance and transparency in smaller firms (among European listed companies) and in the most innovative firms. These results cast light upon the importance of economic capabilities (quantitative and qualitative) of different types of firms. On one hand, firms with a lower amount of assets and resources – such as smaller firms – are less likely to voluntarily engage with environmental and social practices (Cuomo et al., 2022; Christensen et al., 2021) and may benefit more, on a CSR performance perspective, from the recent statutory extension of NFD target firms. This “trickle-down effect” is expected to also hit firms that are not in the target of the CSRD through the supply chains (EC, 2022: 85). On the other hand, firms owning or investing in rare and valuable assets (innovations) are more likely to improve their CSR performance because they may own the resources to comply more efficiently with the requirements of the new regulation (Padgett and Galan, 2010; Jackson et al., 2020; Cuomo et al., 2022).

Among the innovations that may improve CSR performance and transparency, eco-innovations are particularly relevant for this study, since the SRs object of study have been selected from an Italian survey on eco-innovations (Antonioli et al., 2022). The intersection between reporting and eco-innovation is still unexplored to the researcher’s knowledge, with the study by Vieira and Radonjič (2020) being an exception.

From a corporate point of view, eco-innovation practices are spreading all over Europe because of the key-role they have in achieving SDGs (OECD, 2009; UNEP, 2015).

The traditional literature related to eco-innovation envisages product, process, and organizational innovations (Antonioli et al., 2022); however, besides these three components, companies are progressively led to publish information on sustainability impacts deriving from their business activities. SRs contain that information and can be used to share with stakeholders the company's CSR performance (KPMG, 2008; KPMG, 2017). Being an eco-innovative company gives competitive advantage and shapes brand image (Vieira and Radonjič, 2020) and firms may have more interest in disclosing about it, since disclosing is strictly linked to the image shaping to gain legitimacy (Christensen et al., 2017; Breijer and Orij, 2022). However, according to Cuomo et al. (2022), more innovative firms are more likely to be transparent and efficient on CSR performance but are not expected to disclose more than non-innovative firms. Their results, in fact, show that the level of R&D expenditure has no significant impact on the effect of the Directive on CSR reporting, while it positively moderates the effect of the Directive on firms’ social and environmental performance (Cuomo et al., 2022).

In the Italian accounting landscape, many initiatives were born to help firms to cope with the complexity of regulations requirements. An example is the OIBR (*Organismo Italiano Business Reporting*, Italian Business Reporting Organism), that provides support with documents and workshops. A national approach is fundamental to understand the impact of the transposition of

European directives and other international guidelines. Moreover, the results by Cuomo et al. (2022) and Pizzi et al. (2022) show that there is a strict link between the effect of regulations and the culture of a nation.

With the new European proposal CSRD, the theoretical implications listed so far make important to explore the following aspects: 1) the choice of framework made by the different firms considered, 2) the comparability among the selected SRs, 3) the quality and quantity of the SRs considering the dimension and the innovativeness of the selected firms. In the following section, research design and methods will be outlined with the aim of assessing the current reporting behaviour of Italian firms and projecting the future implications of CSRD.

5.3 Research Design and Methods

This paper analyses 3 sustainability reports (SRs) of Italian firms which differ for dimension, sector, and geographical area. The aims are a) to assess the preparedness of firms to the implementation of CSRD, to spot the gaps that firms need to fill to be compliant with the new regulation; b) to compare the quality and quantity of the two reporting regimes (voluntary and mandatory); c) to reflect on the role of eco-innovations in non-financial disclosure.

5.3.1 Sampling

The firms have been selected from the case studies of the first step of the research. Only these three firms draft the sustainability reports. The characteristics of the firms are:

- 1) Firm 1: A small firm (<50 employees) working in the polyethylene recovery sector, performing a voluntary disclosure;
- 2) Firm 2: A medium firm (50<X<250 employees) working in the automation sector, performing a voluntary disclosure;
- 3) Firm 3: A big firm (>500 employees) working in the packaging sector, performing a mandatory disclosure.

The names and other details of the firms are kept secret because they are not relevant for the scope of research.

The reports selected refer to the year 2020 and the language used is Italian.

5.3.2 Methods

The methods used is a directed content analysis (Hsieh and Shannon, 2005; Hooks and van Staden, 2011), also called deductive category application (Mayring, 2000) on non-financial reports directly

requested to the firms. This methodology provides the creation of a coding protocol prior to the analysis. Since the introduction of the Directive and Italian Legislative Decree in 2016, only for the large firm the disclosure was mandatory. The other two performed the disclosure on a voluntary basis. The non-financial reports analysed have been published in 2020 (with reference to financial year 2019).

The content analysis of this study is both quantitative and qualitative. Literature shows that both measures are useful to detect valuable insights (Beretta and Bozzolan, 2004; Chauvey et al., 2015; Venturelli et al., 2017; Doni et al., 2020; Matuszak and Róžańska, 2017; Korca et al., 2021).

Concerning the quantity of reporting, the units of measures used commonly in the literature are words, sentences, or pages (Gray et al., 1995; Holder-Webb et al., 2009; Borkowski et al., 2012; Korca et al., 2021). According to Gray et al. (1995), words are more easily categorized, sentences are more useful to infer meaning, pages reflect the amount of total space given to a topic. Brokowski et al. (2012) chose the paragraph as unit of analysis, instead, because the reports they analysed were organized by topic, which every paragraph was related to. Holder-Webb et al. (2009) used phrases to catch the nuances of the disclosure behaviour.

For this study, the unit of analysis chosen is the phrase for several reasons. First, the counting of pages was excluded because the layout of the three Sustainability Reports (SRs) analysed is personalized for each firm, and this made the quantity of pages an unprecise method. Secondly, also the word counting was excluded since it can depend on different communication styles (extended text or keywords). Finally, after an assessment of the format of the three SRs, also the paragraph counting was considered inappropriate because it can exclude nuances of meaning and references to different sub-topics under the same macro-topic. For these reasons, the phrase seemed the most appropriate unit of analysis in this study, yielding a total of 675 phrases contained in the three SRs. Moreover, for the same reasons, this study included as a unit of measure also the number of graphs and tables present in the SRs. According to Breton and Taffler (2012), tables and graphs contain lexical elements and are part of the text. They should be considered in this analysis because they are an important means for disclosing information. The total number of graphs and tables in the three SRs is 68, that, together with the number of phrases, provides a total of 743 units.

The quality of reporting of this study is based on a coding protocol developed on the sector-agnostic draft standards proposed by EFRAG (Table 15) (PTF-EFRAG, 2022a, 2022b, 2022c, 2022d, 2022e, 2022f, 2022g, 2022h, 2022i, 2022j, 2022k). Sector-agnostic means that it is applicable to all sectors. Cross-cutting sectors were excluded for focusing on the ESG requirements. Moreover, the variable of completeness (Al-Tuwaijri et al., 2004) is used to understand to which extent the SRs analysed manage to fulfil the CSRD requirements. This variable aims to assess the exhaustiveness of information about the categories derived from the coding protocol on three levels: mention (vague

presentation), description (descriptive presentation), evaluation (extensive and numerical presentation) of each category. In other words, the variable thus detects how many units (phrases, graphs and tables) per category are presented vaguely, descriptively, or more extensively and numerically. This is useful to understand not only the level or preparedness of those firms to be compliant with the new regulation, but also what are the topics on which they focus the most.

Code	Description	Example
E1	ESRS E1: Climate Change. Keywords: emissions, carbon neutral, mitigation.	It is a path that will highlight the strengths and weaknesses of the companies and allow us to operate with a view to continuous improvement and the achievement of measurable and at the same time highly challenging goals: the general target of a 50% reduction in emissions by 2030 per tonne of finished product is now being extended to the entire Group, based on 2020.
E2	ESRS E2: Pollution. Keywords: air/water/soil pollution, hazardous waste.	The most relevant quantities are those deriving from the use of wood, cardboard, object, separate collection packaging. Lower quantities derive from powders and particulates of ferrous materials.
E3	ESRS E3: Water and marine resources. Keywords: Water/marine-related management/intensity performance.	This washing process generates a mixture of water and ink that constitutes special waste.
E4	ESRS E4: Biodiversity and ecosystems. Keywords: biodiversity, ecosystem, net loss/gain.	We work closely with our suppliers and partners to ensure sound forest management practices.
E5	ESRS E5: Resource use and circular economy. Keywords: resources, reuse, circular economy, energy, waste.	In 2020 there was a reduction of 22.11% and 6.00% in consumption linked respectively to the purchase of electricity, and to the purchase of natural gas for heating offices and production plants.
S1	ESRS S1: Own workforce. Keywords: workers, welfare, healthy and safety, training.	In 2020 the company reached a grand total of 5.232 working hours, 50% of which was made by female operators.
S2	ESRS S2: Workers in the value chain. Keywords: supplier, clients, value chain.	Without forgetting the sustainability of behaviour, raising awareness among the players in the supply chain and through joint communication and training operations.

S3	ESRS S3: Affected communities. Keywords: community, schools, State, Region, partnerships.	Closer to our community, with the development of projects to raise environmental awareness and develop proximity recycling and the circular economy.
S4	ESRS S4: Consumers and end-users. Keywords: consumers, customers, end-users.	The customer is one of the most important stakeholders to measure the effectiveness of AEPI's choices and resources.
G1	ESRS G1 Governance, risk management and internal control. Keywords: governance structure/code/policy, composition/nomination/diversity policy/attendance rate of board, internal control/audit.	To regulate the activities related to these tasks, the Supervisory Board has adopted its own regulations of which the company Board of Directors is aware.
G2	ESRS G2 Business conduct. Keywords: corruption and bribery, anti-competition, ethic code.	The Antitrust Code of Ethics is a concrete manifestation of the commitment that the Sada Group has made and continues to make to respect the rules of the free market and free competition.

Tab. 15 Coding protocol for SRs analysis

Variable	Categories	Description	Example
Completeness	Mention (1)	Vague presentation of a topic.	The objective of the Sustainability Report is to systematize a series of data, practices, values and objectives that guide the company towards the future
	Description (2)	Descriptive presentation of a topic.	The way in which energy factors are managed is essentially assessed by means of specific KPIs concerning, on the one hand, efficiency in terms of energy units per quantity of product and, on the other hand, the environmental impact associated with the energy mix used.
	Evaluation (3)	Extensive and numerical presentation of a topic.	During 2020 the company was able to regenerate 4.XXX tons of post-consumer PE 100% collected, selected and packed in Italy.

Tab. 16 Variable completeness

Following Al-Tuwaijri et al. (2004), weights from one to three have been assigned to each completeness sub-category: one for mention units, two for description units, three for evaluation units (Table 16). Also, the weight of zero is assigned, in case of absence of the disclosure related to a given item. The methodology by Al-Tuwaijri et al. (2004) requires that the weight is multiplied by the number of units, producing a score called 'product'. Finally, a topic score is developed by

dividing the sum of product values (mention, description, and evaluation) by the topic sum of phrases and graphs and tables; a total score is developed by dividing the sum of product values by the total units of the three SRs which contain the codes (N=702)¹². In the results section, the scores of the three SRs will be provided and compared: the higher the score is, the more complete the topic or report is considered.

The coding has been conducted using the software AtlasTI. The three reports have been analysed also under the perspective of the innovation disclosure, researching throughout the text the references to the adoption of new technologies both under the general and under the eco-innovation perspective.

5.3 Findings

5.3.1 Quantity of SRs

The quantity of reporting is measured counting the number of phrases, tables and graphs present in each SR. Table 17 shows the count of units per firm. In the annex, tables concerning units per firm divided according to the variable completeness and units per topic divided according to the variable completeness for each firm. These tables are useful to measure the quality of reports and the completeness of each topic. Findings show that Firm 1 has the smallest report, Firm 2 the medium and Firm 3 the biggest.

	Firm 1	Firm 2	Firm 3	Totals
○ Phrases	10	287	378	675
○ Graphs and Tables	1	24	43	68
Totals	11	311	421	743

Table 17. - Quantity of SRs per firm

5.3.2 Quality of SRs

The quality of reporting is measured according to the variable completeness. Tab. 18 shows the products per topic for each firm and Tab. 19 shows the total scores, that once again identify Firm 3

¹² The total number of units is different from the total number of units containing codes because the SRs contain also other general information.

with the highest score, followed by Firm 2 and Firm 1. In the Appendix, further tables about different results among the three firms are provided (p. 119-120). Generally, the results show that the topics on which all firms disclose more are Resource use and Circular economy (E5), with a total product of 310, and Own workers (S1), with a total product of 291. The topic that receives less attention is Ecosystem and Biodiversity (E4), with a product of 1: this means that it has been mentioned only once. In the annex, graphs concerning the topic trends may be found.

Topic	Firm 1	Firm 2	Firm 3	Total
E1	0	3	47	50
E2	0	32	85	117
E3	0	17	36	53
E4	0	0	1	1
E5	7	70	233	310
S1	6	210	75	291
S2	3	27	36	66
S3	3	52	58	113
S4	3	23	23	49
G1	0	102	82	184
G2	0	67	41	108
Sum of product values	22	603	717	

Table 18. - Products per topic

	Firm 1	Firm 2	Firm 3
Total score	0,03	0,86	1,02

Table 19. - Total scores

5.3.3 Innovation and eco-innovations

The code “innovation” has been used to understand how these firms disclose on innovation and more specifically eco-innovation. It is important that all these firms are eco-innovative, and this is demonstrated by the qualitative step of the research.

Firm 1 does not refer to any innovation or eco-innovation; Firm 2 totalled 17 units of disclosing innovation with 2 references to eco-innovations; Firm 3 totalled 34 units of disclosing innovation with 14 references to eco-innovations. However, following the results of Vieira and Radonjić (2020), there is a lack of direct reference to the term eco-innovation in examined reports, even though a more thorough analysis reveals that eco-innovations were present in the content.

In the following section the results will be discussed considering the difference between voluntary and mandatory reporting, the relevance of the topics and the gaps that should be filled before the entering in force of the new directive, the general differences among the three case studies and a reflection about the disclosing of eco-innovations. Finally, a comparison between these results and the ones belonging to the qualitative steps will provide cross-research further considerations.

5.4 Discussion

The content analysis performed on the quantity and quality of the three SRs rises several considerations.

First, there is a big difference among the quantities of the three SRs. The more consistent ones (Firm 2 and 3) declare to follow the GRI framework for disclosing, while Firm 1 does not refer to any framework. This first difference shows that the comparability is hindered by the lack of standardisation among frameworks, supporting La Torre et al. (2018) and Venturelli et al. (2019). Moreover, a total absence of regulation can lead voluntary adopters to call SR something that cannot be compared with others that followed a framework. However, even though a comparison between the two SRs that follow the same framework is performable, the quality of the report under the mandatory regime is higher. This may support the hypothesis that the enlargement of target firms provided by the CSRD is going to increase the general quantity and quality of European SRs, with a positive effect also on CSR performances (Christiansen et al., 2017; Cuomo et al., 2022).

Concerning the topics of the draft standards provided by EFRAG, the results show that there are substantial gaps in both mandatory and voluntary SRs. In the environmental macro-area almost no reference to biodiversity and ecosystem is detected, and generally the attention on environmental matters focuses most of all on resource use and circular economy in the SRs considered. The other environmental categories are less treated. This may also depend by the sectors of firms, but, since the draft standards considered are sector-agnostic, it is reasonable to believe that firms of all sectors will have to deal with all dimensions of environmental sustainability because of the implementation of the new directive.

The social macro-area analysis shows that there is in the three SRs a focus on the own workforce, although the situation of the three firms is diverse. Firm 1 gives little but uniform information about

all the social dimensions; Firm 2 shows great interest towards S1 but has little attentions towards the other three social sub-topics; Firm 3 discloses homogeneously about all the four S.

Governance is not even mentioned by the SR of firm 1, while for both Firm 2 and 3 G1 has more attention.

The gaps witnessed by the results may depend not only on the less requiring previous standards, but also on the “comply or explain” approach provided by the soft regulation. However, the SR under the mandatory regime appears more homogeneous in the disclosing of non-financial information. This supports once again the hypothesis that the obligatoriness of NFD could serve as booster of quantity and quality of disclosure.

The size of companies seems to have relevance in these three case studies: there is a linear trend that shows that the larger the firm is, the more information is provided. This may be justified by the resource accessibility issue underlined by the literature (Ramus, 2003; Hourneaux et al., 2014; Cuomo et al., 2022; Christensen et al., 2021). It is important to consider that these results cannot be considered representative but aim at having insights concerning the exploration of the current situation of Italian firms in the field of non-financial disclosure. The aspect that should be considered in this case is that drawing up a sustainability report requires a considerable effort both under time and on resources required perspectives and can be identified itself as an eco-innovation for firms that approach it for the first time. Considered the definition of eco-innovation provided in the theoretical development section, adopting sustainability reporting can be identified as a new ESG activity that firms start not only to share their sustainability efforts with shareholders or investors, but also to frame their sustainability performance. But different undertakings have different approaches to innovations and investments, it may be a matter of cost-benefit, of prioritization of certain activities or of access to data and resources. For this reason, SMEs may result penalized by obligatoriness of NFD. However, EFRAG will proportionate standards to SMEs, and this may have an educational impact on firms and society.

About the innovation and eco-innovation disclosure, SR of Firm 1 completely lacks eco-innovations disclosure, although it adopted several eco-innovations in the previous years, witnessed by the qualitative step. This may depend on the general incompleteness of the SR. In the case of Firm 2 and 3, there are clear references to eco-innovations but no explicit mention. Following Vieira and Radonijč (2020), this may also depend on a general misunderstanding of the word eco-innovation, that needs to be clarified. According to the authors, the explicit mention of eco-innovation in reporting could be indicator of the fact that environmental policy goes beyond the mere compliance to regulation requirements (Vieira and Radonijč, 2020) and could be an indicator of proactivism, most of all in voluntary disclosure. The overall completeness of SRs by Firm 2 and 3 can be related to the help of an external consultant, that did not happen in the Firm 1.

A critical point that should be addressed is the “overpositivity” that transpires from these reports. A big limitation of these disclosures is that it is impossible to understand what firms *do not do*, unless the reader (stakeholder, investor, or researcher) is already aware of the guidelines to prepare a valuable non-financial disclosure. It becomes useful only for the ones that know well the requirements of the standards, not for the ones that are not well-informed. The category evaluation of the variable completeness should serve as an indicator of preciseness of information, based more on quantitative measure than qualitative measures, but mentions and descriptions are more present. This makes SRs more a communication and identity instrument than a ESG performance measurer.

Finally, comparing these results with the results of the qualitative interview, some considerations arise. In the qualitative research, the large company scored the highest environmental culture, and this is in line also with the completeness of its SR. However, there is a mismatching concerning the other two: the medium showed a lower environmental culture than the small firm. The reason could be detected in the fact that SR is a means of communication and small firms may not have enough human and structural resources to invest into this practice. In this dynamic, isomorphism caused by the enter into force of the CSRD may boost the level of sustainability disclosing. Despite this high level, the comparison of the two studies demonstrate that SRs are not always capable of demonstrating the actual sustainability efforts and practices of firms, most of all when it comes to smaller enterprises.

5.5 Conclusions

Based on the content analysis of three Italian sustainability reports of a large, a medium and a small firm of 2020, this study explored the following aspects: 1) the choice of framework made by the different firms considered, 2) the comparability among the selected SRs, 3) the quality and quantity of the SRs considering the dimension and the innovativeness of the selected firms. The aim of the study was to provide new insights within the research on sustainable reporting ahead of the future implementation of the proposal CSRD, starting from the history and impacts that NFRD had on Italian firms. Analysing the history of sustainability reporting can help understanding antecedents and consequences of the shift from voluntary to mandatory sustainability reporting in large firms, in order to study the same phenomenon in SMEs. However, SMEs have less resources than large firms (Cuomo et al., 2022) and may face higher obstacles in implementing the new regulation.

One important contribution provided by this study is that firms that do not fall under the jurisdiction of the Directive may not only be confused about the choice of framework to correctly disclose non-financial information, but also decide to choose none, increasing the comparability gap. Moreover, the paper provides one of the first studies, together with Vieira and Radonjić (2020), that interconnects the topics of eco-innovation and non-financial disclosures.

The results of this study show that the SR under the mandatory NFRD regime is both quantitatively and qualitatively higher than the voluntary SRs, supporting the need to extend CSR reporting regulation to listed small and medium-sized enterprises, that need higher guidance. SMEs usually do not prioritize ESG aspects since they are not the *raison d'être* of the firms (Ramus, 2004). However, mandate reporting may lead resisters to reconsider priorities and have a trickle-down effect also on non-target firms (EC, 2022), such as microenterprises.

The choice of the framework may depend on the national mimetic isomorphism, following Korca et al. (2021), more than a multistakeholders- or investor-oriented approach of the companies: in Italy, for example, GRI and IIRC framework are the most spread (Doni et al., 2020). In the case of the SRs analysed in this study, GRI framework has been adopted both from the large and from the medium company.

Concerning the topics anticipated by EFRAG's exposure drafts, the firms seem to identify sustainability in resource use and circular economy (ESRS E5) and own workers (ESRS S1), as they communicate in their disclosure. This supports the efforts of EU more towards the spread of guidelines and standards that increase not only the quantity of non-financial disclosure, but also the skills and competencies of enterprises, having also educational consequences on workers.

Although this research provides fruitful insights for the study of non-financial accounting, the limits of this study are several. The first set of limits concerns the coding protocol: given the newness of the topic, the protocol is based on the available drafts, so it may change with the definitive versions of the standards; moreover, only on sector-agnostic standards are considered, since the drafts concerning SMEs are still not published. Finally, every standard is very complex, and the coding protocol do not analyse deeply all the requirements of the draft standards, but only the general topic. Further research may consider these limits and create a coding protocol based on the official and definitive version and deepen into every topic specifically.

The second set of limits concerns the sample. Three reports are not enough to detect repetitions but can only be considered as case studies. It may be interesting for further research to take a larger number of reports to scale-up results and assess the preparedness of firms and the gaps that may be filled before publishing the definitive version of standards, most of all the ones directed to SMEs. Moreover, the firms considered are only manufacturers: a larger set of firms (service, public, retail) may provide more insights on the relevance of certain topics of gaps in several environments.

The third set of limits concern the analysis. It has been performed by only one researcher, and, as stated by the literature (Cuomo et al., 2022), this may create bias, since the topics are not well separated, and human eye may not detect precisely all information required by the research question.

6. Conclusions: Summary of Findings and Implications for further Research

In this chapter, research findings will be summarized, highlighting implications for further research and practice. A subsection will be dedicated to the multidisciplinary that characterizes this manuscript.

6.1 Summary of findings

The overall purpose of this study was to provide evidence that a green workplace has the potential to instil or empower environmental identity in employees, until reaching the absorption of a personal trait of environmental culture. Understanding whether a sustainable workplace, through multi-array educational processes, is an effective means to increase sustained environmental knowledge and concern in employees would bolster a decisive political reformation of the current work system to make it more societally valuable.

Built on multidisciplinary literature review (socio-psychological, organizational, behavioural, political studies), this research was developed in multiple steps. The first step consisted in a qualitative study which allowed to detect environmental social norm interiorization and social learning processes in the various corporate contexts, through interviewing 29 respondents of 9 firms. The second step used the findings of the qualitative study to develop a conceptual model. This model is a conditional analysis model based on validated scales to measure the interaction among green workplace social norms, green identity and innovative pro-environmental behaviour, environmental commitment, and organizational identification. The test of associations among the variables set the green social norms as independent variable, having indirect effect over green identity and innovative green behaviours. The indirect effect is justified by the interaction of environmental commitment as

a mediator. In turn, organizational identification acts as a moderator between the environmental commitment and the dependent variables. Finally, the third and last step of this research consisted in a content analysis of three Sustainability Reports provided by firms in the qualitative part, to compare the outputs of environmental culture in different companies and to assess the gaps that Italian firms should fill to comply with the future environmental regulation on disclosure.

The general results can be summarized as follows:

- Green workplaces can influence environmental culture of employees by stimulating their ecological awareness and practices and increasing their environmental identities;
- Being the workplace a substantial part of adults life, the greening of workplaces has spill-over effects in personal lives of employees;
- The prioritization of environmental sustainability in the core business strategy has impact also on the quality of implementation of environmental policies, and, in turn, on the quality of information shared with stakeholders, creating a double-loop learning process among businesses and other entities, such as community and governmental institutions.

In other words, the final conclusion is that incentivising the greening of workplace would create a societal improvement of business systems and individual wellbeing through prioritizing environmental respect.

Throughout all the manuscript, the concept of eco-innovation has been pivotal. Eco-innovations alone are not a sufficient indicator of a holistic environmental prioritization: firms with a transversal environmental strategy are more likely to transmit environmental motivation and commitment to employees, while eco-innovative firms that do not set environmental protection as a main mission are less likely to encourage employees' sustainability identity transformation. Eco-innovative firms show that proactively choosing environmental strategies has impact over the environmental worldviews of employees. Unfortunately, smaller firms have less resources to improve environmental performance, creating the feeling that the current political and financial systems hinder sustainability transition instead of being a driving force. The fact that the structure of society (lack of public transport, non-flexible working hours, lack of sustainable infrastructures, too high prices for more sustainable products) hinders the performance of proper environmental sustained practices is a social problem that should be addressed with the reformation of work and public policies. The mindset change that international policy agendas aspire to should first of all be tackled by the overthrow of the idea that maximisation of profit is more important than social and environmental wellbeing.

6.2 Implications for further research

This manuscript attempted to let different schools of knowledge to communicate in order to provide a general picture over the environmental political situation inside and surrounding Italian firms. The limitations contained in the conclusion sections of each chapter show that there is room for improvements in methodologies and for further studies. For instance, the qualitative step can be scaled up increasing the size of the sample of the sectors of firms involved, not focusing only on the manufacturing firms. Even the extension to the public sector or to the no-profit context would be something to deepen. At least in Italy, private and public sectors are treated and perceived differently.

Another relevant aspect that should be approached by further studies is the cultural dimension. This study focused on the Italian landscape in order to limit the cultural differences, however there are other methods to control this variable. An example is provided by the cultural model by Hofstede (2001). He created this model to measure cultural dimensions to compare countries.

It should also be considered, for further research, the opportunity to use these results to create experiments over the implementation of new environmental policies or strategies, measuring the effect of the employees' environmental culture before and after the implementation. Alternatively, the effects of a green workplace on newcomers (people just hired) can be detected in the same way, with a longitudinal survey or experiment.

To conclude, the main contribution of this manuscript has two components. The first is that, at the best of the author's knowledge, this is the first attempt to reflect on the educational importance of the green workplace over the environmental personal culture of employees through a multidisciplinary and multimethodological approach. The second is that original data have been collected, that may provide secondary data analyses to other researchers.

Historically speaking, the prioritization of certain kind of (r)evolutions, such as the industrial or technological, allowed an exponential development of society. Following the same logic, the prioritization of sustainability values should favour a societal development based on mutual and environmental support and respect, for a better wellbeing of individuals and the planet, leaving no one behind.

6.3 A final note on Multidisciplinarity

Sustainability is by nature a kaleidoscopic issue. Multidisciplinarity is intrinsically embedded in its definition, which is still nowadays – not by chance – in the process of reshaping and enrichment¹³. The ongoing research of a coherent and comprehensive definition that is able to describe this subject

¹³ http://www.sd-commission.org.uk/pages/history_sd.html 3<http://www.un-documents.net/our-common-future.pdf> 4http://www.sd-commission.org.uk/pages/history_sd.html

could lead to challenges in observation, since it can be considered as a global participant observation with limits on objectivity, generalizability, standardization (Corbetta, 2014).

However, to address this complexity, this manuscript combines research drawing from a wide range of subjects, literatures, and schools of thought. Sociology, psychology, international development, organizational, accounting, communication, political and behavioural studies are all called into operation for succeeding in providing an overarching method to meaningfully improve the current literature.

In this manuscript, firms are considered as interacting communities of people who share a certain (corporate) culture (Crémer, 1993; Schein, 1984) and move co-ordinately to achieve the same goal, the one of sustainable development in this case. This approach departs from a typical monodisciplinary mindset that aims at providing insights for profit making or policy driving, which are, either way, undeniably necessary elements for societal improvements. Mostly, the attempt of this study has been to guide the readers through a path of thought that aspires all kinds of individuals to recognise themselves in the pattern described, as inclusively and accessibly as possible. It is well-known that one of the limits of scientific research is the ability to efficiently communicate in order to inspire a rhetoric pulse, and multidisciplinary approaches may help to sustain this inspiration.

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Appendix

CHAPTER 3

Questions guide used in the qualitative interview:

Workplace

- 1) Tell me about your work position (seniority, hierarchical level, work activity)
- 2) How would you define a sustainable workplace?
- 3) Do you think that this definition is reflecting your workplace? Provide examples.
- 4) Since you started, were some eco-innovations implemented in your workplace? Give me some examples.
- 5) Have you received any specific environmental training or education in the workplace?
- 6) Do you remember any bottom-up environmental initiatives starting from employees and not from chiefs?

Private life

- 7) How would you define a sustainable life style?
- 8) Do you think that this definition is reflecting your life? Provide examples.
- 9) Can you tell me when you started paying attention to environmental sustainability?
- 10) Do you think that the workplace influences private life?

Table. 3 - Employees' awareness and practices in the workplace

Cases	Awareness in the workplace	Practices in the workplace	Environmental culture in the workplace
1	3,5	3,5	7
2	4,5	4	8,5
3	4	3,5	7,5
4	2,5	2,5	5
5	1,5	2,5	4
6	3,5	2	5,5
7	4	3,5	7,5
8	4	3,5	7,5
9	4	4,5	8,5
10	2,5	2	4,5
11	5	5	10
12	2,5	3	5,5
13	2,5	2	4,5
14	3	3	6
15	3	3	6
16	2,5	3,5	6
17	2,5	3,5	6
18	2,5	3	5,5
19	2	3	5
20	2	2,5	4,5
21	2	2,5	4,5
22	4	5	9
23	4,5	5	9,5
24	4,5	5	9,5
25	4	4	8
26	1	2	3
27	2	2,5	4,5
28	2	2	4
29	2	2	4
Average	3,02	3,21	

Table 4. - Firms' awareness and practices in the workplace

Sector	Size	Environmental awareness in the workplace	Environmental practices in the workplace	Environmental culture in the workplace
Assembly and manufacture of electrical appliances	small	1,75	2,13	3,88
Automated handling	small	2,00	2,67	4,67
Automatic control systems	small	2,50	2,33	4,83
Industrial electrical systems of automation	medium	4,00	3,67	7,67
Natural pharmaceutical products	small	4,00	3,83	7,83
Packaging	large	4,25	4,75	9,00
Polyethylene recovery and regeneration	small	3,33	3,33	6,67
Tannery machines	medium	2,83	2,67	5,50
Typography	small	2,50	3,33	5,83

Table 5. - Environmental training in firms

Sector	Size	Environmental training
Assembly and manufacture of electrical appliances	small	1,5
Automated handling	small	0
Automatic control systems	small	1
Industrial electrical systems of automation	medium	0,5
Natural pharmaceutical products	small	0,5
Packaging	large	0
Polyethylene recovery and regeneration	small	0
Tannery machines	medium	3
Typography	small	0,5

Table 6. - Employees' awareness and practices in private life.

Cases	Environmental awareness in private life	Environmental practices in private life	Environmental culture in private life
1	3	3	6
2	3	2	5
3	3	2	5
4	3	2	5
5	2,5	2	4,5
6	3	2	5
7	4	3,5	7,5
8	2,5	3	5,5
9	2,5	3	5,5
10	2,5	3	5,5
11	5	4,5	9,5
12	3,5	1,5	5
13	2,5	2,5	5
14	3,5	3	6,5
15	3	2	5
16	3	3,5	6,5
17	2,5	3	5,5
18	2	3	5
19	3	2,5	5,5
20	3	2	5
21	3	3	6
22	3,5	4	7,5
23	5	5	10
24	4,5	5	9,5
25	4	4	8
26	1	1,5	2,5
27	2,5	3	5,5
28	2,5	2,5	5
29	2	1	3
Average	3,03	2,83	

Table 7. - Awareness and practices in private life: score at a firm level

Sector	Size	Environmental awareness in private life	Environmental practices in private life	Environmental culture in private life
Assembly and manufacture of electrical appliances	small	2,00	2,00	4,00
Automated handling	small	3,00	2,50	5,50
Automatic control systems	small	2,83	2,00	4,83
Industrial electrical systems of automation	medium	3,00	2,33	5,33
Natural pharmaceutical products	small	3,00	3,17	6,17
Packaging	large	4,25	4,50	8,75
Polyethylene recovery and regeneration	small	3,67	3,00	6,67
Tannery machines	medium	3,00	2,50	5,50
Typography	small	2,50	3,17	5,67

Table 8. - Employees general ranking: it summarizes the confrontation between work and private life of all respondents. The table presents also other variables such as education level and work position, to allow more comprehensive considerations and partial generalizations. The cases are ranked from the highest to the lowest score in total environmental culture; identification of cases is not provided to respect the privacy of respondents, with the positive side effect of reducing subjectivity bias of the researcher in drawing conclusions. The total is the sum of the environmental culture in the workplace and in private life. Since every element was scored from 1 to 5, environmental culture can reach a maximum of 10 and the total a maximum of 20.

Ranking	Work position	Environmental training	Salience	Education	Environmental culture in the workplace	Environmental culture in private life	Total
1	Environment and quality Head	0,5	W	HS	10	9,5	19,5
2	R&D specialist	1	EDU	HS	9,5	10	19,5
3	Quality manager	1	W	HS	9,5	9,5	19
4	Marketing specialist	1	SOC	U	9	7,5	16,5
5	Clerk	0	SELF	U	8	8	16
6	Executive	0,5	EDU	U	7,5	7,5	15
7	Marketing specialist	0,5	REG	U	8,5	5,5	14
8	Marketing specialist	0,5	SELF	HS	8,5	5	13,5
9	HR manager	1	W	U	7	6	13
10	Workman/Workwoman	0	SOC	HS	7,5	5,5	13
11	Sales manager	0	EDU	U	7,5	5	12,5
12	Project manager	0	SELF	HS	6	6,5	12,5
13	Production manager	0	REG	M	6	6,5	12,5
14	Workman/Workwoman	0	REG	HS	6	5,5	11,5
15	Safety	0,5	EDU	HS	6	5	11
16	Software engineering specialist	0	SOC	U	5,5	5	10,5
17	Clerk	0	W	HS	5,5	5	10,5
18	Graphic design specialist	0	SELF	HS	5,5	5	10,5
19	Graphic design specialist	0	SOC	HS	5	5,5	10,5
20	Workman/Workwoman	0	EDU	M	4,5	6	10,5
21	HR Specialist	0	SOC	HS	5	5	10
22	Clerk	0	SELF	HS	4,5	5,5	10
23	Workman/Workwoman	0,5	REG	M	4,5	5,5	10
24	Technician	0	REG	M	4,5	5	9,5
25	Safety manager	0	SOC	HS	4,5	5	9,5
26	Clerk	0	SELF	HS	4	5	9
27	Clerk	0	SELF	HS	4	4,5	8,5
28	Workman/Workwoman	0	EDU	M	4	3	7
29	Workman/Workwoman	0	EDU	M	3	2,5	5,5

Legend:

Environmental training: 0 = no; 0,5 = self-training; 1 = yes

Salience: W = workplace, EDU = education; SOC = society; SELF = self-efficacy; REG = regulation

Education: U = university; HS = high school; M = middle school

Table 9. - Firms general ranking

Ranking	Sector	Size	Environmental Culture in the workplace	Environmental culture in private life	Total
1	Packaging	large	3,88	8,75	12,63
2	Natural pharmaceutical products	small	4,67	6,17	10,83
3	Polyethylene recovery and regeneration	small	4,83	6,67	11,50
4	Industrial electrical systems of automation	medium	7,67	5,33	13,00
5	Typography	small	7,83	5,67	13,50
6	Tannery machines	medium	9,00	5,50	14,50
7	Automated handling	small	6,67	5,50	12,17
8	Automatic control systems	small	5,50	4,83	10,33
9	Assembly and manufacture of electrical appliances	small	5,83	4,00	9,83

CHAPTER 4

Fig 7. - Conditional analysis models

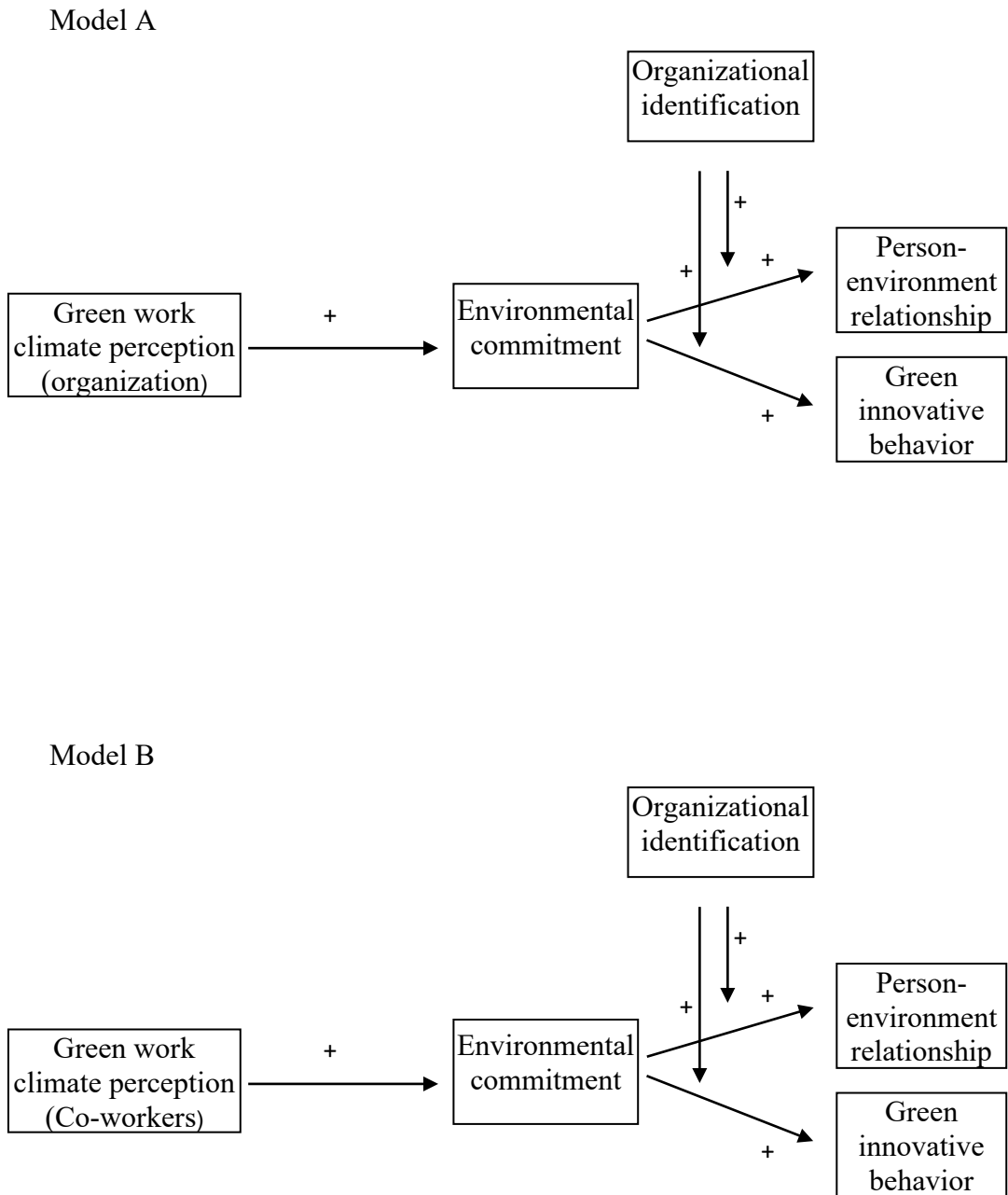


Table 10. - Conditional indirect effect representation

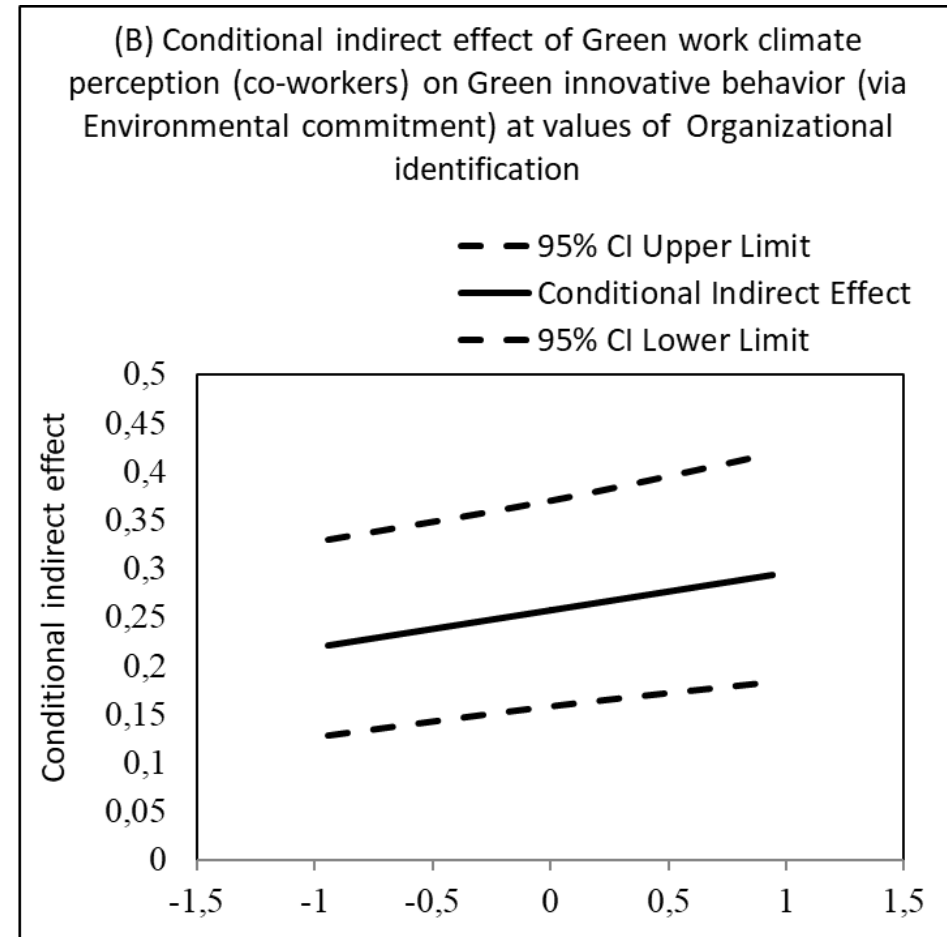
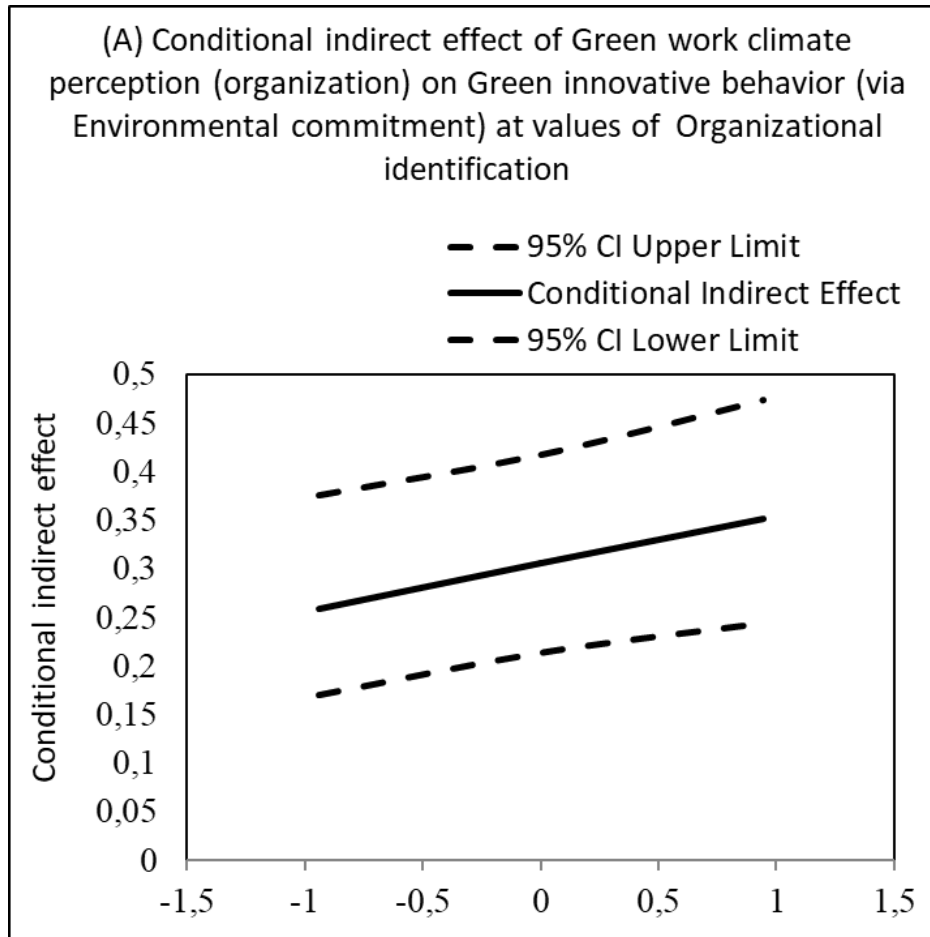


Table 11. Descriptive statistics and intercorrelations of the variables.

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. Organization 1	0.31	-	-							
2. Organization 2	0.22	-	-	-						
3. Organization 3	0.23	-	-	-	-					
4. Organization 4	0.13	-	-	-	-	-				
5. Organization 5	0.11	-	-	-	-	-	-			
6. Age	40.17	11.45	0.28***	-0.16**	-0.06	-0.21**	0.09	-		
7. Gender	0.56	0.50	0.14*	-0.37**	0.23***	-0.07	0.04	0.04	-	
8. Education	2.26	0.72	-0.19**	0.26***	-0.18**	0.14*	0.02	-0.26***	-0.32***	-
9. Job Tenure	8.64	8.45	0.25**	-0.14*	-0.14*	-0.12*	0.14*	0.55***	0.04	-0.25***
10. Position	1.51	0.75	0.11	-0.21	0.03	-0.02	-0.16*	0.11	0.13*	-0.02
11. Green work climate perception (organization)	3.70	0.92	-0.03	0.09	0.18**	0.01	-0.33***	-0.07	-0.15*	0.19**
12. Green work climate perception (co-workers)	3.42	0.90	-0.73	-0.04	0.36***	-0.12*	-0.20**	-0.06	-0.01	-0.07
13. Environmental commitment	3.34	1.25	-0.07	0.01	0.20**	-0.03	-0.14*	0.04	-0.09	0.05
14. Organizational identification	3.17	0.94	-0.15*	0.06	0.18**	0.01	-0.11	-0.02	-0.02	0.14*
15. Green innovative behavior	3.05	0.98	-0.06	0.23***	0.23***	-0.08	-0.15*	0.05	0.03	-0.03
16. Person-environment relationship	5.34	1.38	-0.05	0.01	0.03	-0.09	0.11	0.14*	-0.07	0.12*

N = 271. Cronbach's alpha are listed in parentheses on the diagonal. Education: 1 = middle school diploma or less; 2 = high school diploma; 3 = bachelor degree or more. Position: 1 = production tasks; 2 = supervisory tasks; 3 = middle managers tasks; 4 = top managers tasks. Gender: male = 1; female = 0. *p < 0.05 (2-tailed) **p < 0.01 (2-tailed) ***p < 0.001 (2-tailed).

9	10	11	12	13	14	15	16
-							
0.08	-						
-0.08	0.12*	(0.90)					
-0.12	0.07	0.48***	(0.90)				
0.08	0.23***	0.47***	0.38***	(0.97)			
-0.07	0.21**	0.41***	0.21***	0.43***	(0.94)		
0.03	0.25***	0.47***	0.34***	0.76***	0.46***	(0.95)	
0.14*	0.12*	0.32***	0.17***	0.5***	0.27***	0.54***	(0.97)

Table 12. - Indirect effects of Green work climate perception on Person-environment relationship behaviour and Green innovative behaviour through Environmental commitment

Independent variable	Outcome	Effect	SE	UL 95% CI	
				LL	UL
Model A					
Green work climate perception (organization)	Person-environment relationship	0.27	0.06	0.18	0.40
Green work climate perception (organization)	Green innovative behavior	0.32	0.06	0.22	0.44
Model B					
Green work climate perception (co-workers)	Person-environment relationship	0.25	0.06	0.15	0.38
Green work climate perception (co-workers)	Green innovative behavior	0.28	0.06	0.17	0.39

N=271. Entries are unstandardized coefficient estimates (95% confidence interval). CI, confidence interval; LL, lower limit; UL, upper limit.

Table 13. - Moderated mediation analyses: Green work climate perception (organization) predicting Person-environment relationship/Green innovative behavior, mediated by Environmental commitment, moderated by Organizational identification

	Model A: Green work climate perception (organization) as independent variable						Model B: Green work climate perception (co-workers) as independent variable					
	Environmental commitment		Person- environment relationship		Green innovative behavior		Environmental commitment		Person- environment relationship		Green innovative behavior	
	B	<i>SE</i>	B	<i>SE</i>	B	<i>SE</i>	B	<i>SE</i>	B	<i>SE</i>	B	<i>SE</i>
Intercept	-2.57***	<i>0.50</i>	4.08***	<i>0.58</i>	2.36***	<i>0.30</i>	-2.76***	<i>0.56</i>	4.65***	<i>0.62</i>	2.74***	<i>0.32</i>
Organization 1	-0.21	<i>0.24</i>	-0.96***	<i>0.27</i>	-0.07**	<i>0.14</i>	0.11	<i>0.25</i>	-0.76**	<i>0.26</i>	0.04	<i>0.14</i>
Organization 2	-0.17	<i>0.27</i>	-0.91**	<i>0.28</i>	0.10	<i>0.15</i>	0.16	<i>0.27</i>	-0.74*	<i>0.29</i>	0.19	<i>0.15</i>
Organization 3	0.31	<i>0.27</i>	-1.02***	<i>0.29</i>	-0.01	<i>0.15</i>	0.55*	<i>0.27</i>	-0.83**	<i>0.29</i>	0.11	<i>0.15</i>
Organization 4	-0.10	<i>0.29</i>	-1.10***	<i>0.29</i>	-0.12	<i>0.16</i>	0.28	<i>0.29</i>	-0.93**	<i>0.31</i>	-0.03	<i>0.16</i>
Age	-0.01	<i>0.01</i>	-0.01	<i>0.01</i>	0.01	<i>0.01</i>	0.00	<i>0.01</i>	0.01	<i>0.01</i>	0.01	<i>0.00</i>
Gender	-0.23	<i>0.15</i>	0.04	<i>0.16</i>	0.22*	<i>0.09</i>	-0.29	<i>0.16</i>	0.01	<i>0.17</i>	0.19*	<i>0.09</i>
Tenure	0.02	<i>0.01</i>	0.01	<i>0.01</i>	-0.01	<i>0.01</i>	0.02	<i>0.01</i>	0.01	<i>0.01</i>	0.01	<i>0.01</i>
Education	-0.01	<i>0.10</i>	0.20	<i>0.11</i>	-0.09	<i>0.06</i>	0.17	<i>0.11</i>	0.25*	<i>0.12</i>	-0.06	<i>0.06</i>
Position	0.3**	<i>0.09</i>	0.03	<i>0.10</i>	0.01	<i>0.01</i>	0.33	<i>0.09</i>	0.03	<i>0.10</i>	0.05	<i>0.05</i>
Green work climate perception	0.59***	<i>0.08</i>	0.27**	<i>0.10</i>	0.14**	<i>0.05</i>	0.47***	<i>0.08</i>	0.06	<i>0.09</i>	0.01	<i>0.05</i>
Environmental commitment			0.46***	<i>0.07</i>	0.52***	<i>0.05</i>			0.51***	<i>0.07</i>	0.55***	<i>0.04</i>
Organizational identification			0.04	<i>0.09</i>	0.14**	<i>0.05</i>			0.10	<i>0.09</i>	0.17***	<i>0.05</i>
Environmental commitment x Organizational identification			-0.01	<i>0.06</i>	0.08**	<i>0.03</i>			-0.02	<i>0.06</i>	0.08**	<i>0.03</i>
R ²	0.29		0.34		0.65		0.23		0.32		0.64	
F	10.63***		9.99***		37.13***		7.93***		9.15***		35.38***	

Notes. n = 271. Standard errors in italic. The dummy "Organization 5" is not included in the equations because it is redundant.
*p < 0.05. **p < 0.01. ***p < 0.001.

Table 14. - Indirect effects of Green work climate perception on Person-environment relationship and Green innovative behavior through Environmental commitment at high and low levels of Organizational identification

Independent variable	Level of moderator	Outcome	Effect	Boot SE	UL 95% CI	
					LL	UL
Model A						
Green work climate perception (organization)	(-1 SD)	Person-environment relationship	0.28	0.07	0.16	0.42
Green work climate perception (organization)	(+1 SD)	Person-environment relationship	0.26	0.06	0.15	0.39
Index of moderated mediation			-0.01	0.03	-0.07	0.06
Green work climate perception (organization)	(-1 SD)	Green innovative behavior	0.26	0.05	0.18	0.38
Green work climate perception (organization)	(+1 SD)	Green innovative behavior	0.35	0.06	0.25	0.48
Index of moderated mediation			0.05	0.02	0.01	0.09
Model B						
Green work climate perception (co-workers)	(-1 SD)	Person-environment relationship	0.25	0.07	0.14	0.39
Green work climate perception (co-workers)	(+1 SD)	Person-environment relationship	0.23	0.06	0.13	0.36
Index of moderated mediation			-0.01	0.03	-0.07	0.05
Green work climate perception (co-workers)	(-1 SD)	Green innovative behavior	0.23	0.05	0.13	0.33
Green work climate perception (co-workers)	(+1 SD)	Green innovative behavior	0.30	0.06	0.18	0.42
Index of moderated mediation			0.04	0.02	0.01	0.07

Notes. n = 271. Entries are unstandardized coefficient estimates (95% confidence interval). CI, confidence interval; LL, lower limit; UL, upper limit.

CHAPTER 5

Totals

Table 20. - General results: Phrases per firm divided according to the variable completeness

	Firm 1		Firm 2		Firm 3	
	Phrases	Graphs and Tables	Phrases	Graphs and Tables	Phrases	Graphs and Tables
Mention	1	1	97	3	144	4
Description	0	0	140	9	209	17
Evaluation	9	0	50	12	25	22
Partial totals	10	1	287	24	378	43
Totals	11		311		421	

Firm 1

Table 21. - Nr of phrases per topic divided according to the variable completeness of Firm 1

	Environmental					Social				Governance		Totals
	○ E1	○ E2	○ E3	○ E4	○ E5	○ S1	○ S2	○ S3	○ S4	○ G1	○ G2	
○ Mention	0	0	0	0	1	0	0	0	0	0	0	1
○ Description	0	0	0	0	0	0	0	0	0	0	0	0
○ Evaluation	0	0	0	0	2	2	1	1	1	0	0	7
Totals	0	0	0	0	3	2	1	1	1	0	0	8

Firm 2

Table 22. - Nr of phrases per topic divided according to the variable completeness of Firm 2

	Environmental					Social				Governance		Totals
	○ E1	○ E2	○ E3	○ E4	○ E5	○ S1	○ S2	○ S3	○ S4	○ G1	○ G2	
○ Mention	1	3	0	0	6	24	4	6	10	4	14	72
○ Description	1	7	4	0	17	48	7	14	2	34	22	156
○ Evaluation	0	5	3	0	10	30	3	6	3	10	3	73
Totals	2	15	7	0	33	102	14	26	15	48	39	301

Firm 3

Table 23 Nr of phrases per topic divided according to the variable completeness of Firm 3

	Environmental					Social				Governance		Totals
	○ E1	○ E2	○ E3	○ E4	○ E5	○ S1	○ S2	○ S3	○ S4	○ G1	○ G2	
○ Mention	4	4	3	1	34	19	17	14	11	15	13	135
○ Description	5	15	6	0	68	19	8	22	6	29	14	192
○ Evaluation	11	17	7	0	21	6	1	0	0	3	0	66
Totals	20	36	16	1	123	44	26	36	17	47	27	393
