

Article

Promoting Sustainable Workplace Routines: The Identity and Practice Interdependence Model

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Abstract: To clarify how the interaction of socio-material and human factors impacts the implementation of sustainable workplace routines, we developed the identity and practice interdependence model and then applied it to empirical data collected from a major Brazilian steel-producing facility. This qualitative exploratory study examined the model's assumption that employee identity construction principles (e.g., self-esteem, self-efficacy, distinctiveness, continuity) and elements of practices (e.g., materials, meanings, competencies) provided by organizations directly impact routines and also interact in a continuous, interdependent process. Company documents, on-site observations, and data from three focus group sessions with a total of thirty employees from all levels were examined. A deductive reflexive thematic analysis was carried out on the data using Atlas.ti v 8. The results show that the model allows for the identification of the factors and their interactions, providing insights into how greener routines are created, accepted, resisted, maintained, and/or altered. When changes in practice elements can provide a path towards satisfaction of identity principles, rather than threats, there is good engagement in more sustainable routines. Employees seeking satisfaction of identity principles also take initiative, addressing practice elements that can allow for improved routines. Organizations/companies can apply some of the insights that this model provides to facilitate changes towards more sustainable work routines.

Keywords: sustainability; workplace routines; environmentally responsible behavior; identity construction principles; social practices; interdependence model; change management; employee engagement; environmental and social responsibility; sustainable consumption and production



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1. Introduction

To achieve sustainability, wide-ranging actions are needed [1–3]. Actions need to address structural changes, business, governmental and community entities, and individuals [4] to effectively meet the challenges of climate change. Sustainability-oriented innovations and practices involve complex systems (e.g., economic, social, political, health, cultural, organizational, educational, environmental) [5,6], a diversity of contexts (e.g., micro, macro, local, national, international) [7], and a variety of actors (e.g., users, workers, administrators and managers, consumers, shareholders, producers, public officials, companies, researchers, etc.) [8]. Companies, organizations, and other workplaces are essential settings for such change. Khaw et al. [9], in a recent review of the literature on organizational change in general, recognized that attempts at change often fail to achieve their goals, independent of the value and importance of the goals. They concluded that employees are central to such change and are often the determining factor in whether desired changes occur and how successfully they are implemented. They called for better conceptual models and further research into this aspect.

Previous research on change towards more sustainable work routines within businesses has mostly been descriptive [10]. Lamond and Everett [11] indicated that further

in-depth studies are necessary to explain how practices change, how new practices are proposed, and how positive behaviors could be motivated. Ruiz-Perez et al. [12] noted that there is low consensus within the research on factors that influence the implementation of environmentally responsible behavior (ERB) within organizations, and on the ways in which employees may shape such factors. Rieg et al. [10], in a literature review of the implementation of ERB within post-secondary education institutions, confirmed that the general categories of organizational values, change processes, and human factors are at the core of successful change. Coscieme et al. [13] observed the importance of education and behavioral change to more sustainable business practices, but they did not explain how to achieve such change. There have been multiple calls for theory-building around how to achieve the required employee input and commitment for change leading to more sustainable routines [10,14–16].

Many studies on sustainable development use mainstream approaches from social psychology that focus on the role of individuals and explain personal changes as being sufficient for social change [17]. Reducing the understanding of organizational sustainability transitions to a result of individual choices weakens the analysis of what is at stake, compromises the development of public policies [18], and restrains the efficacy of the promotion of sustainable practices and lifestyles [19]. Behavioral change must be tackled in complex ways, in combination with the implementation of changes in policies, regulations, and business practices [2].

Udall et al. [20] reviewed 62 studies focusing on the use of identity models to encourage ERB. They found medium effect sizes, with the strongest effects occurring when identity is made salient through social cues, and when individuals are encouraged to make a conscious choice to identify as pro-ERB. This review supported the importance of deliberate organizational actions in promoting ERB in the workplace, as well as the interaction between organizational actions and identity factors. These authors also pointed out the financial benefits that companies gain when they achieve more sustainable processes, as a possible additional justification for these efforts.

Seeking to reconcile individual agency with a practice-based perspective, using social practice theory (SPT) concepts, Süßbauer and Schäfer [21] found that for smaller companies or organizations, an environment that values employee contributions and participation and provides for easy communication across hierarchies increases employee engagement in environmentally responsible routines, possibly partially by attracting and retaining individuals who identify as “green”.

Also applying an SPT approach to investigate how infrastructures and daily life (re)shape one another, Watson and Shove highlighted that more attention should be paid to the ways in which arrangements of technologies and infrastructure encourage different practices. They observed that analyses frequently neglect that “infrastructures and technologies are embedded in the detail of what people do, in discourses and judgements of value and well-being” [22] (p. 384).

Huang et al. [23] pointed out the complexity of ecological behavior and encouraged the combination of identity models (self and social/collective) with aspects of the theory of planned behavior and beliefs about both individual efficacy and collective efficacy. Higher levels of collective identity and sense of belonging, as well as of individual and collective efficacy, were found to encourage both individual and collective ERBs. In their study, some ERBs were less likely to occur due to the higher behavioral costs involved and/or the lack of required materials and competencies, which may also have affected feelings of self-efficacy [23].

In workplace settings, studies show that employees’ ERB is mediated by feelings of trust in the company and by processes of identification with the organization [24]. The importance of organizational mechanisms to communicate the company’s socially responsible goals and activities, as well as to clearly value employee participation in such goals and initiatives, is emphasized. Perceptions of the organization as authentically involved in socio-environmentally responsible behaviors have been shown to strengthen workers’

trust in the organization and increase their feelings of self-esteem in the context of being associated with the company [25]. Recognition of the importance of employee perceptions of the green practices of companies and organizations has led to the development of tools for assessment [26]. Employees judge whether a company is authentic in its stated desire for socially responsible change based at least partially on their perceptions of the motivations behind the proposed changes [27,28]. Internal motivations are considered to be more authentic, whereas those created by pressure from government or regulations, or triggered by public relations concerns, are less so. Gopalakrishna-Remani et al. [29] showed that employees' perceptions of organizational leaders strongly believing in sustainability goals and practices impact their adoption.

Although providing relevant contributions, studies using psychological and sociological approaches do not satisfactorily explain the interrelation and the interdependency between the structural and individual dimensions for the performance of more sustainable routines [19]. Improved models are needed to guide organizations and governments to effectively create conditions and support for the performance and multiplication of ERB and sustainable practices [30–32].

The study reported here provides an in-depth analysis of one complex situation where multilevel changes towards more sustainable practices in work routines were made at a major steel-producing facility. A new analytical model, combining identity process theory and social practice theory, is applied to assess whether and how the dynamic interactions between the elements of practices and the principles of identity construction can explain how sustainability-related routines are created, accepted, resisted, maintained, and/or altered.

Our results show that the principles and elements of the model can be applied to the data. Employee identity construction processes and company practices are shown to be intertwined and interdependent. Company actions, which often take the form of practice elements, clearly interact with identity principles, increasing or reducing their salience, which can motivate employee engagement in positive social and sustainable outcomes. This contributes to better understanding of individuals'/workers' roles in the trajectory of routines and how practice elements impact employee engagement. This study provides insights for the planning and implementation of paths to encourage more sustainable work/organizational routines.

In the next section, we present the conceptual approach that supported this research, highlighting key concepts and theories. Then, we describe the model that we created, along with its components and assumptions. Afterwards, we state the general and specific aims that guided our research. In the Materials and Methods section, we explain the choice of methods, list the specific objectives of the analysis, and describe the research details, data collection procedures, and analysis approach. Then, we present the data analysis. In the Discussion section, we present specific conclusions based on the results, interpreting them in the light of previous studies. There, practical implications and limitations of the findings are addressed, as well as future research directions and general conclusions.

1.1. Conceptual Approach

1.1.1. Social Practice Theories

Social practice theories (SPTs) focus on practices, which can be defined as “socially shared patterns of activity” [22] (p. 377), blocks of doing and sayings [33], encompassing bodily and mental activities [34]. They consist of interconnected and interdependent elements, such as “things” and their use, knowhow and knowledge, motivational understandings, and states of emotions [34]. SPTs seek to analyze how practices change, emerge, and connect [35]. Elements of practices, which practitioners combine in carrying out and reproducing or changing these patterns [22], provide the conditions for practices to be recognized, coherent, and regular through everyday life [33,36]. These elements can be divided into three main groups [35];

- Materials: tools, technologies, tangible physical objects, infrastructure, the body itself.

- Meanings: aspirations, expectations, ideas, emotions, and symbolic meanings.
- Competencies: knowledge, knowhow, skills, and techniques.

SPTs perceive individuals primarily as carriers of practices [35,37]. Reckwitz [34] considers that agents consist of body and mind, who “carry” and “carry out” different practices. With efforts to remove the focus from individuals, SPTs often ignore considerations of some of their theorists that point out a certain active role of practitioners. Reckwitz [34] observed that changes and alterations in routines may occur as individuals confront the “crises” that routines can experience in reality. In this attempt to avoid individualistic perspectives, SPTs were led to develop “too much fear of studying (1) how the performances of practices vary between practitioners and (2) how individuals perform practices across particular socio-material settings, including how individuals also take part in shaping structures” [38] (p. 9). This creates limitations for these theories, particularly related to mental and bodily processes [39].

Studies on sustainability benefit from focusing on practices and using SPTs, since it is through people’s daily activities (e.g., eating, cleaning, commuting, and working) that they consume all sorts of resources [40] and produce waste, pollution, and other undesirable effects. But there is a gap in SPTs because they cannot satisfactorily explain agents’/individuals’/practitioners’ roles in the trajectory of practices, in how practices are created, maintained, resisted, adapted, or abandoned.

1.1.2. Identity Process Theory

Identity process theory (IPT) defines identity as a dynamic and changeable product resulting from the interaction between the person and the social context. This is a theory of that process [41], not of individual identification with specific groups, subgroups, or attitudes. As the person interacts with physical structures and social processes that operate across time, space, and situations, they choose, create, and absorb new elements into their identity, such as values, attitudes, and social connections, which are constantly adjusting [41,42]. Breakwell [41,42] explained that this dynamic characterizes the processes of assimilation–accommodation and evaluation, which make up the continual process of identity construction. Four identity principles have been identified as guiding these processes, which affect perceptions and the attribution of values and meanings [42]. Since these principles define optimal and desirable states for identity configuration, striving to achieve them motivates and determines decision-making and actions [43]. These principles can be summarized as follows:

- Self-esteem: Feelings of self-worth and perceptions of oneself as valuable. With the salience of this identity principle, the person strives to achieve and maintain satisfactory positive self-esteem [42,43].
- Self-efficacy: Beliefs concerning one’s abilities to produce certain effects as a result of one’s actions [44] and to cope with situations [43]. Perceptions of self-efficacy regulate the amount of effort and persistence that the individual expends on a task; if the person feels that their efforts will be fruitless or believes that they do not have the competence to create the desired effects, they will give up more easily. The salience of this identity principle guides the person to seek to achieve and maintain satisfactory feelings of competence and control over life and situations [42,43].
- Continuity: The individual’s self-perception of identity consistency on valued criteria. This may encompass changes and inconsistencies as long as they are congruent with one’s identity self-perceptions. With the salience of continuity, the person aims to achieve and maintain satisfactory feelings of identity congruence across time, space, and situations [42,43].
- Distinctiveness: Feelings of positive differentiation from others and/or feelings of uniqueness. With the salience of the distinctiveness principle, the person tends to engage in activities to maintain/gain positive feelings of uniqueness and differentiation based on valued criteria, by comparing and contrasting themselves [42,43]—or groups to which they belong—with others.

IPT explains that threats to the satisfaction of identity principles occur “when an attempt to accommodate or assimilate new information, or change a value, undermines a guiding principle” [45] (p. 349). Dealing with changes in the configurations of physical structures or social processes that might threaten the desired level of the identity principles, the person may experience feelings of uncertainty or insecurity [43]. Individuals tend to perceive these situations as aversive, causing discomfort or emotional distress, leading to attempts to attain or regain satisfactory levels of the principles. This process may create a pressure to return to former conditions, or it may create favorable conditions for changes in beliefs, attitudes, behaviors, and/or physical and social settings [42,46].

Breakwell [43] observed that, to deal with threats to the ideal levels of identity principles, in certain situations the individual may act in ways that will create prosocial results, outcomes that are advantageous and beneficial for the group or for society. This argument, combined with the understanding that identity is continually constructed in the processual relationships between person and environment, is the main reason that we chose to use IPT in our analytical model.

Outside of the IPT model, there has been other research and theorizing about the identity principle components. Bandura [47] indicated that seeing a behavior modeled by peers is a powerful way of increasing self-efficacy around that behavior, which results in more willingness to engage in the behavior. Verbal persuasion, in the form of reminders that the individual is capable of carrying out a task since they have done something similar in the past, or that they have the skills/knowledge to do so, is also effective. This is especially the case when the reminder comes from a source considered to be credible because they know the requirements of the task and the capacity of the individuals involved. As summarized by Baumeister et al. [48], direct efforts to increase the self-esteem component independently of self-efficacy and actual performance appear to be unhelpful and may even backfire. When self-esteem is satisfied while performance is inadequate, desired behavior or behavioral change is unlikely to occur. These authors encourage praise or recognition that can boost self-esteem only as a reward for socially desirable behavior that has already occurred. This is consistent with the IPT concept that when the desire for self-esteem is currently satisfied, there is less motivation for action.

When an individual or a group to which the individual belongs to is perceived as quite similar to others, the desire to satisfy distinctiveness needs can lead to the re-evaluation of characteristics in such a way as to emphasize differences [49]. The person may shift the criteria on which they are basing their evaluation, or they may focus on ways in which they or their group do similar things or have similar characteristics, but better [50].

Evans et al. [51] found that people are more likely to act consistently with an identity component when they feel that overarching values are involved, rather than self-interest. Fernandes-Jesus et al. [52] also pointed out the impact of individuals' beliefs that their own actions and participation in collective action actually help create the desired social change, which fits the definition of a self-efficacy belief.

Using IPT to study individual transport-related behavior towards sustainability, Murtagh et al. [45] observed that when people start to perform certain new activities (e.g., walking more habitually), it can affect their identity construction in a more environmentally friendly direction, which might motivate further sustainable behaviors. These authors proposed that to promote policies and campaigns towards sustainability, threats to identity should be minimized, as they may create resistance to the desired changes.

1.2. Identity and Practice Interdependence Model

To overcome the weaknesses of previous research and theorizing that has focused on either individual factors or socio-material ones, Frezza et al. [19] developed a framework that combines IPT and SPT concepts to analyze cross-situational spillover in the performance of routines (especially work routines). This combination should be feasible and fruitful for the analysis of complex observations and for holistic discussions about the interrelationships between psychological and socio-material elements that are involved

in the promotion of changes and/or the maintenance of desirable routines. Based on that framework [19], we created and used the identity and practice interdependence model (IPIM) (illustrated in Figure 1) to focus the analysis and discussion of data gathered in one setting.

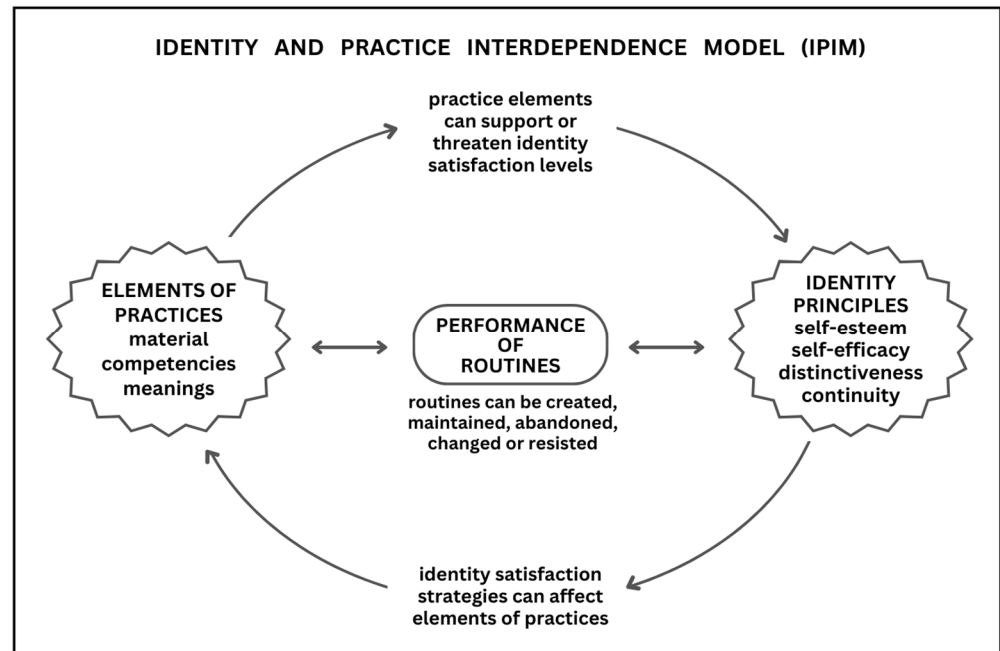


Figure 1. In this figure, the IPIM demonstrates the interdependence of identity construction and social practices in one setting/situation.

The IPIM assumes that situations occurring in specific times and places (e.g., companies, homes, schools, etc.) provide practice elements (e.g., materials, meanings, and competencies) that shape routines that are performed within the setting. Situational factors and the available elements of practices provide content for identity construction, supporting and/or challenging existing identity components. While individuals are (continuously) constructing their identities, this construction process can have direct impacts on routines, or via influence on practice elements.

This model also assumes that identity principles are challenged when situational conditions (e.g., changes in elements of practices or difficulties occurring in or around the routine) threaten the achievement or the maintenance of the optimal/desirable states of identity principles (i.e., self-esteem, self-efficacy, continuity, and distinctiveness). Alternatively, challenge could occur when conditions exterior to work routines threaten identity principles in ways that are also relevant in the working environment [19]. Threats to identity principles are experienced as aversive, uncomfortable, or distressing. To avoid or eliminate this discomfort, people will engage in strategies to maintain/achieve the optimal states of identity principles. They can reshape identity components, such as by shifting the criteria by which they judge the component, which can impact how they interact with routines. Alternatively, they can act to change the situational factors, such as by reshaping the configuration of the elements of practices, thus impacting routines. A mixture of changes to identity components and to practice elements could also occur. The interrelationships between identity construction and elements of practices that are shown in the IPIM occur in dynamic, multidirectional processes, none of which have priority or precedence over others.

1.3. General Research Aim

The general research aim of this study was to assess whether and how the dynamic interactions between the elements of practices and the principles of identity construction can contribute to explaining how sustainability-related routines are created, accepted, resisted, maintained, and/or altered in this workplace.

2. Materials and Methods

2.1. Choice of Methods

There has been no previous empirical study on the complete framework developed by Frezza et al. [19], so the use of exploratory, qualitative research methods was considered to be most appropriate and productive. Since this study's theme is complex and dynamic, it is essential to clearly identify and value people's experiences, knowledge, perceptions, and feelings, and to take into account contextual factors. The qualitative approach allowed for the collection of in-depth information, providing the opportunity for participants to discuss and comment on one another's arguments, which created rich and vivid data [53]. The focus groups with three different categories of employees and the three types of data sources (i.e., company documents, focus groups, and on-site observations) allowed for data triangulation, which contributes to clarity and confidence in understanding complexity [54].

Despite collecting data on three scopes of sustainable routines (waste, water, and energy), for the present paper we concentrated on our data about routines related to water use. This allowed for a close examination of the aspects related to the IPIM, without the presentation of overwhelming quantities and complexities of results. The data relating to waste and energy will be analyzed in further steps of this project.

Specific objectives of the analysis:

In data about work routines intended to be more environmentally sustainable:

1. Identify elements of practices proposed by SPTs.
2. Identify principles of identity construction from IPT.
3. Identify interactions between identity construction principles and elements of practice.
4. Identify impacts of these interactions on work routines.

2.2. Research Details and Data Collection

The data presented in this paper originate from a larger exploratory study. Data collection took place at ArcelorMittal Tubarão (the Company), a steel plant that has a total built area of 7 million m². It is located in Serra, ES, Brazil and is owned by a multinational conglomerate. This company was selected for having implemented internal measures that favor the practice of sustainable routines. Institutional reports published from 2008 to 2019, available on the corporate website, were analyzed. Three focus groups were conducted between January and April of 2017. They lasted from 60 to 90 min and took place at the company in a private room. Only the researcher and the participants were present. Audio recordings of the focus groups were made.

Employees were invited to participate by company human resources management via emails that contained general information about the research. All employees who volunteered were placed into the first two of the focus groups, divided by the type of job that they had within the company. While conducting the focus groups, we realized that no shop-floor workers had participated. The company explained that the time slots of the two first focus groups were not compatible with their work shifts. At our request, the company made another call inviting only employees in this category. We scheduled a third focus group at a convenient time and received positive responses. This focus group included only shop-floor workers.

A sample of 30 (thirty) employees participated in the focus groups. Focus Group 1 had 11 participants from management and planning staff, Focus Group 2 had 11 participants from administrative and office staff, and Focus Group 3 had 8 participants from shop-floor staff. This division was useful to avoid tensions and/or fear of expressing personal thoughts due to power differentials and belonging to different work teams and positions.

Observations were also made on-site, during three two-hour visits to the company. As suggested by Bell [53], observations were important to better understand how things happened at the plant.

In each focus group, discussions about the employees' routines were promoted. Questions were about routines related to sustainability issues, particularly the production and destination of waste and the use of water and energy, during the time participants spend on the job. For each of the three scopes (waste, water, and energy), the following topics were inquired about: company programs that focus on environmental responsibility and sustainability; sustainability initiatives that the company has implemented; processes, changes, and effects of the initiatives on routines at work; how and to what extent employees were involved in those programs, initiatives, and changes; how the employees felt about the programs, initiatives, and changes.

Reflexive thematic analysis (TA) was used to identify, analyze, and offer patterns of meaning from the dataset [55]. Since the IPIM entails a set of concepts, topics, and assumptions, a TA deductive approach to organizing, coding, and interpreting the data was used. Atlas.ti was used to organize and analyze the data.

The initial categories used in coding were work routines, sustainability scopes (waste, water, and energy), the three elements of practice, the four identity principles, interactions between practice elements and identity principles, company initiatives, employee initiatives, employee engagement in change, and employee resistance to change. Further codes were added as the analysis progressed, but no new categories were created.

The first author carried out the primary data analysis. Validation of the analysis used for this section of the project was carried out by the second author, through independent coding of about one-third of the data (in the original Portuguese). Because the disparities in coding were minor, this was considered to be sufficient. The two authors then worked together to reconcile any disagreements about the coding.

There were two levels of data triangulation: we had three types of data sources (company documents, focus groups, and on-site observations) and three groups of participants from the main employee groups within the company (management, office, and shop-floor).

All ethical procedures were followed in relation to the participants, the company, and the information gathered. To ensure the participants' confidentiality, we have given them fictitious names. The company granted permission to publish its name.

3. Results

3.1. Company Initiatives/Actions: Elements of Practice and Identity Principles

Water use was a particularly salient sustainability concern at this site at the time of data collection, due to an ongoing drought in the region. Both the focus groups and document analysis showed that major investments in technology were made by the company, which resulted, among other initiatives, in a more sustainable cooling system, as stated in the Annual Sustainability Report of 2016;

Built on the seaside in the 1980s, Tubarão plant has a water system based on the use of sea water. Today, 96.5% of all the water used is collected from the sea. It circulates throughout the various sectors, performing indirect heat exchange for equipment cooling, and it is not in contact with any material; then, before returning to the sea, the water goes through a waterway and by a stabilization pond where the temperature is lowered [56] (p. 68).

In this quote from company documents, elements of practices are recognized: materials (e.g., waterways, wells, equipment, water stations), meanings (e.g., why the cooling process is used; use of seawater for cooling production processes), and competencies (e.g., to carry out the cooling process; to implement innovations; to improve environmental control). In the focus groups, the participants commented on these actions taken at the plant, showing shared understandings of these meanings and materials, as well as manifesting satisfaction of identity principles through these company actions, across the different types of employees participating in the focus groups, as shown in Table 1.

Table 1. This table shows examples of employees’ comments on corporate initiatives, highlighting elements of practices and identity principles involved in the mentioned routines.

About Company Initiatives		
Focus Group Quotes	Identity Principles	Elements of Practices
<p><i>That’s salt water. In part of the process, . . . sea water intake system, the sea water comes in through four pumps.</i> (Marcelo, Cristiano, Focus Group 3)</p> <p><i>Besides that, this water, that’s still clean, it’s returned to the sea.</i> (Leonardo, Cristiano, Focus Group 3)</p> <p><i>That water is clean, because . . . there’s the Tamar Project. There are little turtles. They’re an indicator that the water is good quality, too. If the water was bad or dirty, you wouldn’t have that flourishing sea life there.</i> (Cristiano, Focus Group 3)</p> <p><i>I started working here seventeen years ago. [. . .] You are trained for that, that’s the culture of the Company, [. . .] the sustainability. [. . .] I say the Company is visionary, we have equipment, processes here that are more advanced than the techniques currently practiced in the steel industry [. . .]. The cost is still not viable, economically, but as far as energy use goes, it’s really different [from other companies].</i> (Gabriel, Focus Group 1)</p>	<p>Distinctiveness: What the company does is special/unique</p> <p>Self-efficacy: The company is able to achieve production goals without damaging the environment</p> <p>Self-esteem: The company is doing something good/ important, and the employee is proud of this</p>	<p>Materials: Water stations, water pumps, systems</p> <p>Meanings: Efficient seawater use, acting in environmentally friendly ways</p> <p>Competencies: To implement innovations, improve environmental control, and operate equipment</p>

During on-site observation, we visited the seawater cooling exit station, where the water returns to the sea and where turtles come to find food. In both the focus group recordings and the on-site visits, employees used different intensity and tones of voice when discussing the company’s partnership with the Tamar Project, an environmental foundation for conservation and research. In discussing and showing us the water recirculation system, they demonstrated pride (self-esteem) and identification with the company in this initiative. Employees recognized it as something special and unique (distinctiveness). Participants’ quotes in Table 1 express enthusiasm and pride (self-esteem) at the “difference” the company shows (distinctiveness), in developing a system that achieves production goals without damaging the environment (self-efficacy).

In these data, we can see that when the company makes changes and implements actions, it configures arrangements of practice elements. This makes a certain set of practice elements that shape how routines are performed available to the employees. Also, we can see the salience of identity principles as an effect of their interrelationship with elements of practices made available by the company’s actions.

3.2. Employee Initiatives: Identity Principles and Elements of Practice

In the focus groups, the participants mentioned suggestions made by employees. These suggestions were valued and implemented by the company, which contributed to changes in practice elements, altering the ways in which routines were performed at the plant.

From the quotes in Table 2, we can see that competencies are clearly part of the changes in the ways in which work routines are performed. Employees from different focus groups (i.e., different employee levels) were proud (self-esteem) of changing routines in ways that support sustainability but do not undermine the primary goal of the work routines (self-efficacy), which depends on the skills and knowhow that are part of the practice.

Another eco-efficient step mentioned both in the focus groups and in the Annual Sustainability Report of 2008 is recirculating water used to wash the work areas and when trucks and machinery are lubricated. This system not only reuses 100% of the water needed for those processes, it also saves a significant amount of money per month—including costs related to discharge and to acquiring detergents and degreasers. The investment in this system was estimated to pay for itself in 30 months [57].

Table 2. This table shows employees' comments on employee initiatives highlighting elements of practices and identity principles involved in the mentioned routines.

About Employee Initiatives		
Focus Group Quotes	Identity Principles	Elements of Practices
<p><i>I'm on the maintenance team. [...] The team itself suggested 'look, during this crisis, when there's lack of water, let's stop washing vehicle seats and floors. Let's explain, to whoever requests our services, that we'll be doing maintenance this way. Let's explain that this cleaning is wasting water [...]. It will be good to reduce this waste of water. Let's explain that we're not doing things the way we used to [...], to be able to save water. (Luis, Focus Group 1)</i></p> <p><i>[For] saving water, there's the recovery of water from the air conditioning equipment, where containers were added to the frames. Then, the cleaning team is told to use this water for cleaning. [...] It's day-to-day, ideas arise, options arise, it's daily. It's the culture, it's our culture. (Cintia, Focus Group 1)</i></p> <p><i>In my area, personnel had the idea of closing the [toilet] water valve by 50% [...] the flush is weaker. [...] less water gets used. So, people really picked up on that. (Pedro, Focus Group 3)</i></p> <p><i>We proposed a project, which the management supported us, encouraging. We are recovering this water, [...] returning this water that was wasted, and now it is being reused for consumption [...]. Water consumption fell due to these practices, and everyone's awareness. Everyone is coming together to improve water use. (Sandro, Focus Group 3)</i></p> <p><i>Everyone was seeing that all that water was being wasted. [...] this idea came from us at Base, to reuse water. We organized the teams, [...] together with the management, we really invested, purchasing equipment and everyone working [...]. This is good for us and good for the Company. This idea actually came from people in the area. (Marcelo, Focus Group 3)</i></p>	<p>Distinctiveness: Being part of a unique work area, team, or culture; positive differentiation of work teams</p> <p>Self-efficacy: Being able to act and deal with challenges; to elaborate and implement projects to reduce the waste of water; to justify the changes and improvements to others</p> <p>Self-esteem: Pride for belonging to a work team that makes the difference, and for coming up with ideas/solutions themselves; worth and value for management's support and the company's culture</p> <p>Continuity: Attitude and performance congruence; performance is maintained and reproduced across time and areas</p>	<p>Materials: Restrooms; toilet valves; projects; equipment</p> <p>Meanings: Reuse, reduce consumption, reduce waste; actions being good for people and the company</p> <p>Competencies: Knowhow to elaborate and to implement projects, and to find solutions for challenges related to water consumption</p>

From the company documents and the focus group quotes, we can see how changes that the company implemented in 2008 are connected to the attitudes, behaviors, and routines of the work teams in 2017, in the context of the drought conditions occurring in the area at the time of the data collection. We can see that employee commitment to reducing water consumption highlights feelings of continuity.

Participants' choice of words expresses their perception of being capable of finding solutions and of having control over these situations, showing feelings of self-efficacy. Participants highlighted the fact that the work teams to which they belonged actively sought to find and implement changes to their work routines that permitted more sustainable use of water. These perceptions also exemplify the importance of employees' identification with the group in its unique contributions, as well as feelings of group worth, showing the salience of distinctiveness and self-esteem, respectively.

The quotes in Table 2 demonstrate feelings of self-esteem when participants proudly described employee actions taken at the plant, aimed at creating more sustainable water use and consumption. Participants also expressed the perception of being able to deal with demands and challenges arising during daily work activities, developing strategies to reduce water consumption and to reuse water that was previously wasted, which also shows feelings of self-efficacy. When participants call attention to the fact that they, as individuals or as a team, are the creators of innovations, they express feelings of distinctiveness. When employees want to and make efforts to reproduce and multiply actions through time and space, feelings of continuity, at both the individual and group levels, are salient. Another result worth highlighting is the participants' recognition of an open communication channel between employees and inspectors/managers, to propose/implement changes in routines

and/or to seek necessary support (i.e., practice elements) to adapt or maintain routines to satisfactory standards.

Table 2 also shows ways in which practices bundle together, with the changes in the air conditioning system permitting changes in cleaning practices, resulting in reduced water consumption.

3.3. Showing the Model Dynamics

The example presented next may seem small, in that the reductions in water consumption created are not as significant as those brought about by changes to major industrial processes at the plant. However, it is important in the context of repeated droughts in the region of the plant, and it allows for an overview of the changes created in a routine, with the various elements of practice and identity principles interacting clearly in a dynamic and holistic process.

3.3.1. Context

In the years preceding our data collection, the region of Brazil in which the plant is located experienced several periods of drought. This caused both water and energy deficits, impacting the domestic, agricultural, and industrial sectors [58]. The company implemented several initiatives and actions to adapt to this crisis, as described in the company's Annual Sustainability Report of 2016;

In the environmental dimension, one of the highlights in 2016 was the way we continued to face the water crisis, performing the actions included in the Water Masterplans of all industrial units, through the responsible use of this resource that is shared by all society. The Company intensified investments to improve water management by streamlining consumption, developing new ways of reuse and seeking alternative sources. In the face of the biggest water crisis in the country's history, which took place in 2015, the company reaffirmed in 2016, its commitment to contribute to the efforts on addressing water shortages, with sustainable solutions inside and outside its walls [56] (p. 5).

Here, we can see meanings that were promoted by the company, in wording such as “face the water crisis”, “responsible use”, “commitment”, etc. As part of company investments, training, programs, and visual communication were commented on by participants in the focus groups, highlighting the interrelation between elements of competencies and feelings of self-efficacy for work routine performance:

[...] in trainings, programs, and visual communication [...]. That's where the Company culture comes in, the whole set-up, it leads us to do things a certain way, and we improve those processes as we go along, of course. So, in the day to day, first of all, what's already been figured out, what's already managed and well-known, it just flows that way. (Gabriel, Focus Group 1)

The company's Annual Sustainability Report of 2016 also points out support for competencies:

The main goal is the search for an increasing eco-efficiency, which is incorporated into the strategic planning of the Company, by means of investments in training, education, technologies and certifications that provide new business formats and solutions [56] (p. 59).

Meanings and competencies made available and supported by corporate actions affect participants' feelings of self-efficacy, favoring their perception of being able to find and take their own actions:

With this drought here in [the State of] Espírito Santo, they [the Company] really encouraged us to save water. So, there was a campaign, and from that moment people brought forward a ton of ideas to save water. (Pedro, Focus Group 3)

The intentionality of company actions was also highlighted by participants, as was the interaction with attitudes already present in employees:

There is an effort by the Company, there's a big concern with people becoming more aware. What happens is that many people already have this [awareness], [so] that work is made easier in practice. (Francisco, Focus Group 1)

Employees recognized that the company makes efforts to provide workers with what they need to feel engaged and to create and apply solutions:

The Company, it marks, it does campaigns, it tries to connect those campaigns to things that affect everyone directly and indirectly. It tries to stimulate that feeling of participation and belonging. In other words, something won't work if I don't do my part, what I can do as a 'little person' within [the company]. [...] So, that opportunity to develop this sense of belonging, of participating in something bigger, I think that makes us, makes people feel more of a commitment to participating in those movements. So, if it depends on me, if I don't do my part, will it work? It will, but it won't be as good. But if I do my part, it'll work better! So, for sure, I can do that. (Alex, Focus Group 2)

This quote illustrates the salience of feelings of self-efficacy, of self-esteem, and of continuity to employee engagement with more sustainable routines.

The company provides materials, competencies, and meanings so that these routines can be performed and disseminated to all relevant sectors of the plant:

And we publicize the good practices. An idea arises here, and the Company is very strong in the dissemination. Ideas start, they multiply. (Eliot, Focus Group 1)

3.3.2. Alteration of a Routine

Within the context of company campaigns and the implementation of more sustainable routines, there was a suggestion made by employees to implement plastic clamps around the automatic faucets throughout the company's installations. This would reduce the water flow through the faucet, reducing water waste. This change was mentioned in all three focus groups, as well as during our visits/observations at the plant. On these occasions, employees proudly mentioned that the proposal was designed by the employees themselves; they explained how the clamp worked, and they highlighted that the company embraced and supported the project.

The company provided practice elements, including the material conditions needed to implement this change in routine: the clamps themselves, and their installation by company employees on all faucets. They also provided competencies: information about the clamps, about their installation and use, and about who to contact with questions or if there were problems. Meanings were provided as well, in the dissemination to other work areas, as well as the goal and purpose of the clamps.

3.3.3. Acceptance of the Routine

In visits to the plant, employees pointed out the clamps (materials) to the researcher, explaining why they were used (meanings), how they worked, and how they came to be used (competencies), showing their acceptance of this new routine. They proudly (self-esteem) explained that the clamps were designed and suggested by an employee (group self-efficacy, distinctiveness). Seeking feelings of satisfaction, pride, worth, respect, and recognition seemed to move employees to act in ways to achieve and maintain positive perceptions of themselves, both as individuals and as part of groups (e.g., their own team, the larger group of employees, the company as a whole);

Personal satisfaction, recognition by the Company, this counts a lot. There are some projects that you propose that are implemented. But you do not receive a financial reward, you do not have an economic benefit, but you are recognized, you are given the credit. (Sandro, Focus Group 3)

Employees emphasized the fact that when they and their colleagues generated innovations, they did so in a well-informed and effective way. One participant said

We have to consider the costs, and to combine the needs with the cost of implantation and modification. (Octávio, Focus Group 1)

Then, a colleague immediately added

Otherwise, you win on one side and lose on the other, generating waste. (Fabiana, Focus Group 1)

Feelings of self-efficacy were made visible in these quotes. Employees demonstrated that they were aware of their capabilities to analyze, to make decisions, and to take actions in order to produce the desired results. In this way, we observed the combination of feelings of self-efficacy and the competence of knowing how to do things, which appears to increase the chances of the routines being oriented towards sustainability.

Employees indicated the need to perceive themselves as acting consistently with their identity, sometimes through mention of moments when the discomfort of not being able to satisfy that need became apparent:

It's funny, you start to notice it in other places! For example, I go to the shopping center and I start to use the faucet [in the shopping center restroom], that doesn't have the clamp, and there's that ton of water coming out. It starts to bother me. (Susana, Focus Group 1)

Another participant immediately added

It's impressive how much it becomes bothersome when people don't do anything! It's impressive! (Ignácio, Focus Group 1)

We can observe a connection between the meanings that are part of the practices performed at the company and the salience of identity feelings of continuity in the maintenance of employees' self-perceptions as environmentally responsible. Additionally, feelings of distinctiveness are triggered by being in an environment where these practices are carried out in less sustainable ways.

One of the ways in which satisfaction of the identity principle of distinctiveness showed up was through comments about those who were resisting the change in routine.

One participant commented on coworkers who did not follow the altered routine:

Because it's more work. You turn it, and only a bit of water comes out. So, you have to turn it again. So, there'll be somebody who takes it [the faucet clamp] off, because of that. That person hasn't internalized this yet. (Francisco, Focus Group 1)

These words imply that the participant (and the group with which they identify on this topic) has internalized the need for this change. The use of words like "somebody" and "that person" shows the differentiation from others that can satisfy feelings of distinctiveness.

3.3.4. Maintenance of the Routine

Some comments highlighted further changes that occurred to support the new configuration:

We look at the faucet, and if we notice there's no clamp, we let people know. Because we saw, using those clamps, that over time it dries out and breaks. So, people do that, they call and ask the maintenance people 'come fix this, the clamp is gone and it's wasting water', 'oh, there's a faucet here that's not ok'. (Sheila, Focus Group 1)

There was a big thing among the supervisors, about a month ago, one of them saw, in the bus station [of the Company], that in the restrooms there were some faucets that didn't have the clamp. So, that guy sent a message to the whole supervisor group, alerting them of that and [suggesting] that each supervisor should check whether that was happening in their area too. (Francisco, Focus Group 1)

This ongoing adaptation in order to support the new, more sustainable routine can be seen as a strategy for satisfying the continuity identity principle. Adapting the routines allowed self-perceptions of being concerned with the environment to be felt as consistent.

4. Discussion

4.1. Discussion in Light of Previous Research

Our findings are consistent with research in other areas (e.g., education and healthcare) that has shown that people's feelings and beliefs (e.g., self-efficacy and self-esteem) are crucial for processes of change [59–61]. Company investments to promote environmental solutions and to create sustainable business processes involve communication campaigns and training programs [56]. These were mentioned by participants as creating attitudes and feelings about work routines and sustainability improvements. These beliefs and feelings then combined with the conditions and materials provided, leading to employees willingly performing routines in more sustainable ways. We can see the integration of available competencies and materials with feelings of self-efficacy and self-esteem. This model allows us to go beyond previous explanations and recommendations for implementing this type of change.

The data showed that employees' knowledge and understanding of major investments and changes already made by the company (even changes that did not directly impact the routines of the participants) then also became meanings for other routines. But meanings alone do not suffice. The prior integration of all three elements of practice into company initiatives appears to be an important signal to employees of the sincerity and authenticity of organizational initiatives and leadership. This perception is central to employee engagement, as pointed out by Islam et al. [25] and Gopalakrishna-Remani et al. [29]. It can contribute to the trust in the organization that is essential to foster the engagement of employees with more sustainable routines, as also indicated by May et al. [24]. It is possible that when companies primarily appear to address meanings (e.g., good intentions, saying the right things), without also providing competencies and materials for the proposed sustainability action, employees do not experience the same unsatisfactory levels of identity principles, leading to reduced employee engagement in the desired change. The same may occur when materials and/or competencies are provided without the corresponding sustainability-oriented meanings; the changes may appear to be pointless or not worth the effort required. In the face of inconsistent or incomplete practice elements, employees may default to their current ways of maintaining satisfactory levels of identity construction principles, leading to reduced engagement with changes towards greater sustainability.

As Udall et al. [20] found, our results also demonstrate that company actions clearly interact with identity factors. These authors concluded that making social cues encouraging ERB more salient would be useful. This can be interpreted as relating to meanings as well as distinctiveness. Consistent with the findings of May et al. [24], clear communication about company initiatives and goals, as well as practical evidence that the company values employee initiatives, appears to have also contributed to employee engagement. Participants commented on their satisfaction at seeing their suggestions widely disseminated and implemented in the various sectors of the company. Employees' self-esteem seems to have benefited from being recognized and associated with the teams involved. In these cases, the salience of self-esteem appears to have increased employee engagement in more sustainable routines. These arguments are consistent with the conclusions of Udall et al. [20].

When participants described their hierarchical superiors listening to them, welcoming their proposals, and providing the necessary practice elements to implement and maintain their projects, they highlighted that there is open and dynamic communication between employees and company management. This result is consistent with the conclusions of Süßbauer and Schäfer [21], and in our data this occurred even within a very large and formally structured company, perhaps because the company had been implementing more sustainable routines for some time. We found that this communication channel provides opportunities for the satisfaction of self-efficacy and self-esteem through employee actions, without mention of concerns about the possible individual behavioral costs (e.g., effort, adaptation, inconvenience) that the changes might create.

Participants' comments on colleagues' initiatives to solve sustainability challenges showed that the participants saw themselves as being part of this group that has the skills

and the material conditions to make a difference. These feelings of self-efficacy may increase their willingness to participate in and maintain new/changed routines. These findings are consistent with those of Bandura [47], who explained that observation of peers carrying out new behaviors tends to increase both self-efficacy and the willingness to act in similar ways.

When employees seek to adapt and continue to adapt the elements of their routines to be consistent with the self-perception of being concerned with the environment, this helps satisfy the need for continuity in identity. This is consistent with the findings of Breakwell [42], who noted that continuity does not mean merely repeating former actions but, rather, acting in ways that create consistency in identity self-perceptions—in this case, as concerned with sustainability.

Our study's outcomes deepen the understanding of the individual needs identified by Süßbauer and Schäfer [21], by explaining these in terms of individuals seeking to maintain/achieve satisfactory levels of identity principles. This process is only possible considering practitioners as embedded in the setting that is provided by the available elements of practices. We not only confirmed that the company and employees can both (re)shape practices [21], we also verified that employees and practices are intertwined and interdependent. We argue that by bringing in identity factors we provide valuable perspectives for these studies on how employees and practices interact to create changes in routines.

Similar to the findings of Murtagh et al. [45], our research shows that when individuals act to achieve/maintain satisfactory levels of identity principles, positive social outcomes can result. These authors highlighted that even occasional changes can have this type of impact on identity construction and, thus, enhance the consolidation of sustainable practices. This was observed in our study concerning the case of the faucet clamp implementation, which was a small change (in material elements) motivated by identity principles (i.e., self-efficacy and self-esteem) that promoted a considerable impact on daily routines performed throughout the plant.

There were reports of resistance to the change in routines involving the clamps on faucets (e.g., employees removing the clamps, which they found annoying), which is consistent with the findings of Huang et al. [23]. Murtagh et al. [45] considered that threats to identity should be minimized when promoting more sustainable routines, as such threats may create resistance to the desired changes. Our data indicate that a certain level of threat can encourage these changes, rather than triggering greater resistance. The difference may lie in the clear availability of ways in which the individual can regain or re-stabilize the identity principles, by engaging with and contributing to the more sustainable routines. In the case of the clamps, participants noted feeling uncomfortable seeing that colleagues had removed the clamps. This can be seen as a reaction to a threat to the participants' self-esteem and distinctiveness, since the continued use of the clamp within the plant contributed to the satisfaction of those principles. This threat motivated them to act, to try to resolve this issue in a way that would again support satisfactory levels of self-esteem and distinctiveness. This is an example of how a threat to identity principles can lead to action in favor of a more sustainable routine.

The changes suggested and implemented by the employees resulted in new arrangements of competencies, meanings, and material elements of practices. Employees clearly understood these changes as being both acceptable to the company and supported by it in practical ways.

As recommended [10,14–16], this model allows for a better understanding of how companies/organizations can achieve better employee input and commitment to more sustainable routines. It allows us to see how the configuration of elements of practices affects identity construction processes, as well as how identity principles affect the configuration of practice elements, hindering or supporting how more sustainable routines are adopted, maintained, adapted, or resisted.

4.2. Strengths and Limitations of the Research

One limitation of this study is that it was carried out at one site, at one point in time, limiting its generalizability. Another limitation is that the participants self-selected into the focus groups, and they knew that their supervisors and HR were informed of their participation (since the focus groups were held during work shifts). These conditions can result in participants who are more interested in and engaged with the topic of the research than the average of the population. However, the participants did not express perceiving themselves as particularly different from the majority of employees in terms of their interest in and engagement with ERB and sustainability issues. Rather, they saw those among their colleagues who did not understand or were less concerned about the environmentally sustainable practices as unusual and as unlike most of their colleagues. These “resistors” were sometimes described as newly arrived at the company. This supports reasonable generalizability from this sample to the population of employees at the plant.

It is a strength that this qualitative study provided rich, detailed, and contextual data, as well as the analysis of data from multiple sources, allowing for triangulation. Data collection at this large plant of a multinational steel company provides a complex, real-world example.

4.3. Recommendations for Future Research

Research in other work/organizational settings would allow for the evaluation of the generalizability of the IPIM model. Quantification of the model/concepts would facilitate this type of research, as well as integration of the IPIM into research on other business-related “green” initiatives and concepts. Quantitative measures of the model’s elements would also make longitudinal studies more realistic, which could provide better information for application in real-life settings.

Future studies should apply the IPIM in other work and organizational settings. It would also be particularly useful to gather data in settings where the implementation of more environmentally sustainable routines is meeting resistance, difficulties, or delays from workers/practitioners, since the company where we conducted our field research has so far been quite successful in implementing these types of practices.

We suggest that future studies should focus more closely on how threats to identity principles are created, and on what configurations of practice elements can influence whether threats create resistance to or acceptance of desired change.

Contextual factors, such as social, economic, or political changes, may impact employee identity construction processes as well, so their impacts on these dynamic interactions in the workplace should be studied.

4.4. Contributions for Corporate/Organizational Application

Application of the interactions and dynamics that can be identified through the IPIM can allow for a deeper understanding of some of the recommendations that are familiar and often applied when organizations implement more sustainable routines. It can also create new suggestions that may make such implementation smoother. Because companies are usually quite proficient at providing practice elements for changes in routines, the suggestions here are focused on the ways in which identity principles contribute to the desired changes, and on how they interact with practice elements to impact employee engagement with more sustainable routines.

4.4.1. Preparation for Change

Before implementing changes in routines to favor sustainability, companies or organizations may find it useful to assess employees’ current sustainability competencies and meanings, as well as their desire to see/perform more sustainable work routines. If these are already found to be high, then evoking continuity needs may be an effective way to encourage employee engagement with such change. The gap between current routines and more sustainable ones, or the gap between the outcomes of current routines

and more sustainable ones, can be made salient, evoking dissatisfaction with continuity needs. However, elements of practice that are consistent with those changes need to be clearly available; otherwise, employees will not perceive the proposed changes as a realistic path to the satisfaction of continuity needs.

Organizations may expect some employee reluctance and/or resistance to planned and/or proposed more sustainable routines, especially when the changes are expected to require more effort or create inconvenience. Therefore, the role of trust in the environmentally responsible values of the organization must be considered. The evaluation of employee perceptions of organizational “green” values and practices can indicate readiness (or the lack thereof) for change implementation [26].

When assessment shows that employees do not perceive the organization or its leadership as authentically invested in and ready for changes towards greener activities, it may be more effective to first implement modifications that show management as fore-runners and/or come primarily at a cost to the organization. These may take the form of financial investments or temporarily reduced profits or extra effort for upper management, with little-to-no personal cost (which usually comes in the form of effort, adaptation, and inconvenience) to the employees.

After these organizationally costly changes are implemented and communicated, identity factors among employees can be assessed, especially indicators of distinctiveness and self-esteem related to those changes. Where these identity factors are shown to be at satisfactory levels, then implementation of initiatives that directly impact employees should be smoother, because the desire for satisfactory levels of continuity and distinctiveness will become salient. This approach can be seen as providing a deeper and more actionable understanding of the conclusions by Islam et al. [25] and Gopalakrishna-Remani et al. [29] that employee perceptions of organizational sincerity and trust in organizational genuineness around ERB are crucial to successful implementation.

4.4.2. Encouraging Positive Change with Employee Initiatives

It is well known that creating a work environment where employees feel that they have a voice (such as through the invitation and application of suggestions for improving work routines) is an effective approach to increase employee engagement [62,63]. The IPIM allows for the conceptualization of this process as employees seeking satisfaction of self-esteem, self-efficacy, distinctiveness, and/or continuity identity principles. Company support for potentially useful employee suggestions, through the provision of the practice elements of meanings, materials, and competencies, makes this a viable path to satisfactory levels of the identity principles. This viable path then encourages employees’ engagement in the changed routines (as well as more such suggestions in future). It can also contribute to employee engagement in company-led initiatives towards more sustainable practices, including those that may be demanding for employees in terms of effort, adaptation, and inconvenience. Employees may seek to satisfy the distinctiveness and continuity principles made salient by the previous implementation of employee suggestions. The contribution of the IPIM model lies in providing insights into aspects that need to be attended to or can be made more salient by using this approach.

4.4.3. Decreasing Resistance Factors

The implementation of more sustainable workplace routines may create resistance. Resistance can be understood as strategic reactions to threats to identity principles. For example, self-efficacy and self-esteem may be threatened by the temporary loss of efficiency or competence that occurs when new skills or information have to be learned, or by the new materials, equipment, or supplies used to implement more sustainable routines. Self-efficacy can be particularly threatened when employees are unsure of whether they will be as proficient at the changed routines, or of whether the more sustainable routines will reduce the control that they have over processes or outcomes. Continuity may be threatened by any change, including when a routine that the employee has been carrying out for some

time is newly framed as being harmful to the environment or wasteful. Distinctiveness can be threatened by any perceived reduction created by the proposed more sustainable routines in aspects of the company, group, or individual that have been seen as positively different from others.

When threats to identity principles occur, employees may prefer to retain former routines, which sustained identity principles, or may feel discomfort with the changes. This contributes to resistance to change. It is especially important that identity principles may be satisfied by positive engagement with the more sustainable routines, and that the path to such satisfaction be made clear and salient. This may also have the benefit of reducing the perceived importance of the behavioral costs (effort, adaptation, and inconvenience) of the more sustainable routines. The changed routines may be perceived as “worth” these costs because of the opportunity to reach optimal or desirable identity states, reducing resistance.

4.4.4. Offering Paths to Self-Efficacy and Self-Esteem When Change Is Desirable

As first indicated by Bandura [47], self-efficacy can be supported by offering models of peers (i.e., individuals who the employee perceives as similar to themselves in relevant ways) successfully carrying out the changed routines or confidently navigating similar types of changes. This makes a clear path to satisfactory levels of self-efficacy salient. Likewise, peers proposing adaptations that contribute to sustainability (indicating peer self-efficacy) can support the changed routine as such a path. Verbal persuasion from credible sources, which within a company/organization may be hierarchical superiors or peers, can also make such a path salient. Outside trainers or company specialists who are not already integrated into the routines concerned may be less effective in providing verbal persuasion. This can occur when they are not perceived as being deeply familiar with the current and changed routines or the employees’ capacities, reducing the credibility of their indication of a path to satisfying self-efficacy.

Applying the suggestion of Baumeister et al. [48], it is important not to encourage high levels of self-esteem around routines that have not yet become more sustainable. This aspect may be particularly important when sustainability-related changes in routines may threaten self-esteem, such as through employees’ self-perceptions as being less competent or less efficient at carrying out the more sustainable routine. This can result in resistance to change, through the preference for previous, comfortable forms of routines. This tendency to resist may be reduced if a clear path to the resumption of satisfactory self-esteem can be shown through the more sustainable routine. Emphasis should be placed on how employees will be able to become at least as competent and efficient as in the past, with the positive addition of greater sustainability. This primarily involves the practice elements of materials (including provisions for employees’ time invested in becoming efficient in the changed routine), meanings, and competencies, plus employee time and effort. This point also indicates the importance of widespread recognition and credit for changes that have already occurred in the desired direction, demonstrating to employees that this is a viable path to satisfying self-esteem.

4.4.5. Encouraging Positive Distinctiveness

In a similar way, threats to distinctiveness can be actively encouraged, perhaps by pointing out the many ways in which the organization is similar to others in its field, or how similar this work team is to others within the organization. Then, a path to distinctiveness can be offered through new criteria for differentiation; the organization/team can become better at sustainability efforts than the other, similar ones are, through the adaptation of routines. Alternatively, the path to distinctiveness can be encouraged by increasing the salience of existing positive differences, e.g., this team has contributed more ideas, more effective ideas, or more widely useful ideas for more sustainable routines, or this team has so far been more successful in adopting more sustainable changes. The desire for satisfying levels of continuity would then be expected to have a positive impact on engagement with more sustainable routines.

4.4.6. Integration of Identity Principles and Elements of Practices

If organizations/companies choose to work directly with identity principles to improve employee engagement with more sustainable routines, the practice elements that can permit satisfaction of those identity principles through more sustainable routines must be available. That availability must also be clearly communicated. Likewise, the provision of practice elements without appropriate attention to identity principles can hamper the desired change.

Without this integration, employees may perceive organizational sustainability efforts as insincere or inauthentic (e.g., all talk and no action/investment), too threatening to identity principles (e.g., change is bad; this will make us feel uncomfortable/incompetent), or too costly to employees (e.g., effort, adaptation, inconvenience) without worthwhile gain, any of which can reduce employee engagement and trigger resistance to change. As the model proposes and this study shows, identity principles and practice elements are interdependent; successful change requires working with that interdependence.

5. Conclusions

We developed the identity and practice interdependence model (IPIM) and then applied it to empirical data collected from a major Brazilian steel-producing facility, conducting a qualitative, exploratory, empirical study. The validity of the results was improved via triangulation of sources (three focus groups with thirty participants from different work positions, on-site observations, and company documents).

The IPIM improves our understanding of the crucial interaction between organizational initiatives and human factors when change toward greater sustainability is desired. The IPIM postulates that practice elements (i.e., materials, meanings, and competencies, primarily provided by the organization) and individuals' identity construction principles (i.e., self-esteem, self-efficacy, distinctiveness, and continuity) impact workplace routines, both directly and in their interaction.

Our data showed that employees' perceptions of company actions being sincere, authentic, and/or consistent (often through the elements of practice) can affect identity construction principles, enhancing or hindering employee engagement in the desired routine change. Open communication channels between managers and workers provide opportunities for the satisfaction of self-efficacy and self-esteem through recognition of employee proposals and value, which can favor employee initiatives. This recognition is even more effective when the company provides the necessary equipment, meanings, and/or training so that employee suggestions can be integrated into work routines, and when these suggestions are disseminated throughout the workplace.

The implementation of changes towards sustainability may bring on employee resistance, hindering the expected results. For instance, new configurations of materials, knowledge, and purposes may create threats to self-efficacy and continuity, since the individual may anticipate lesser feelings of efficiency, competence, and purpose than they usually experience in that setting. Our findings indicate that such threats do not need to trigger resistance to change; they can also create opportunities for improving employee engagement, because the individual will tend to (re)act in order to satisfy the optimal levels of self-esteem, self-efficacy, distinctiveness, and continuity. When experiencing identity principle dissatisfaction, the employee may engage in strategies that can lead to the acceptance and/or improvement of the more sustainable routines. Offering clear paths to improved or regained satisfaction of identity principles through engagement with more sustainable work routines shows itself in our data to be an effective way to create good employee engagement.

Based on these observations, the IPIM also offers practical suggestions for improving how changes towards more sustainable work routines are managed.

This study was carried out at one site and at one point in time, which may limit its generalizability. The self-selection of the participants may have impacted the representation of the population.

Quantification of the IPIM and its elements and interactions, its application in other work/organizational settings, and the development of longitudinal studies could allow for more robust generalizability of the results and provide more information for its application in workplaces. It would be particularly useful to collect data in settings where attempts to implement sustainability are meeting resistance and difficulties. More detailed investigation into the role of threats to identity principles, as well as how those might be managed to encourage more sustainable work routines, is also recommended.

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Institutional Review Board Statement: Prior to data collection, the research proposal was examined and approved by the Research Ethics Committee (CEP) and the National Ethics Commission in Research (CONEP) of Brazil, with the certificate number CAAE-60901916.9.0000.5052. In Brazil, it is compulsory that all field research involving human beings be registered with the CEP/CONEP System via Plataforma Brasil, a governmental platform. All ethical procedures were followed in relation to the participants, the company, and the information gathered [64]. To ensure the participants' confidentiality, we have given them fictitious names. The company granted permission to publish its name.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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