



Volume 1 · Issue 3 · 2026 pp.44-55

Forging Sustainable Minds: How Strategic Communication Supports Employee Pro-Environmental Behavior in the Middle East Steel Industry

Trinanjan Gupta^{1,2,*}¹ Independent Researcher; Founder, Ripples NextGen² Doctoral Researcher in Psychology, East Bridge University* Corresponding author: trinanjang2007@yahoo.co.in

ORCID ID: 0009-0000-9750-8860

ARTICLE INFO

Article history:

Received: 20-09-2026

Received in revised form: 30-09-2026

Accepted: 08-10-2026

Available online: 10-10-2026

Keywords:

Employee Green Behavior
Environmental Psychology
Pro-Environmental Behavior
Psychological Ownership
Strategic Communication
Sustainability Culture

ABSTRACT

Sustainability in the steel industry is often discussed in terms of technology, emissions, resource efficiency, and regulatory compliance. These concerns are important, but they do not fully explain how sustainability becomes part of employees' everyday decisions and working practices. This paper examines how strategic communication may support employee pro-environmental behavior in the Middle East steel industry through an environmental psychology perspective. Using an interpretive conceptual case analysis, the study integrates established theory, published research, and industry-relevant sustainability literature. It does not report survey, interview, experimental, or organizational performance data. The analysis identifies five connected processes through which communication may become behaviorally meaningful. These include translating sustainability goals into task-specific actions, strengthening employees' perceived ability to act, creating opportunities for participation and psychological ownership, reinforcing credible leadership and peer norms, and providing feedback that sustains meaning and commitment. Based on these processes, the paper proposes Sustainable Psychological Engagement as a provisional construct comprising employees' cognitive understanding, emotional connection, and voluntary behavioral commitment to environmentally responsible work. Strategic communication is therefore positioned not as a stand-alone campaign, but as part of a wider behavioral pathway that may support employees' pro-environmental practices. The proposed framework offers practical guidance for industrial organizations and a testable foundation for future research across organizational, industrial, and cultural contexts.

1. INTRODUCTION

1.1 Industrial and Regional Context

Sustainability is a tangible reality in every steel plant. Employees experience it through the materials they handle, the energy and water they use, the waste they generate, and the conditions in which they work. It is shaped by routine decisions made during every shift. An employee may notice an environmental issue and raise it during a toolbox meeting. However, a supervisor must then decide whether to give that issue proper attention or allow production pressure to take priority. These ordinary choices may appear small when viewed separately, but together they shape how environmental responsibility is practiced across the workplace. Technology, investment, and formal policy remain essential, but employees also need to

understand what sustainability means for their roles and feel that responsible action is expected, supported, and worthwhile.

Steel plants in the Middle East often bring together employees from different cultural, linguistic, occupational, and educational backgrounds. A single message may therefore be understood in several ways. Language that appears clear in a management presentation may feel difficult to an employee dealing with equipment, materials, safety requirements, and production targets. Communication becomes useful only when it connects the organization's environmental ambitions with the actual decisions employees are expected to make. It requires managers and communication teams to explain why an action matters, what employees can realistically do, and how their contribution fits within a larger organizational effort.

The term 'steel industry' is used in this paper as a conceptual site rather than as evidence from a named organization. The intention is not to present every steel workplace in the Middle East as identical. Each organization has its own systems, workforce, leadership practices, and operational pressures. The industry nevertheless provides a valuable site to examine a wider psychological issue. Sustainability commitments often begin at the corporate level, but they become meaningful only when employees can connect them with their own work. The central question is therefore not simply whether an organization communicates its sustainability goals, but whether communication helps employees understand those goals, see their relevance, feel able to contribute, and carry environmentally responsible practices into their everyday work.

1.2 Problem Statement and Rationale

Organizations often place sustainability at the center of their communication, yet employees may struggle to connect these messages with their everyday work. They may see posters, read newsletters, attend awareness campaigns, or receive annual updates on environmental performance. However, these forms of communication can feel disconnected from the decisions they make. Repeating a message may make it more visible, but visibility does not necessarily help an employee to understand what to do, why the action matters, or whether the organization will support it. When sustainability is presented mainly through broad targets and corporate language, employees may regard it as the responsibility of environmental specialists, senior leaders, or external auditors rather than as part of their own work.

Environmental psychology helps explain why this gap can occur. Behavior develops through the continuing relationship between people and the site where they work [1, 2]. In an industrial workplace, that site includes more than the physical environment. It includes procedures, equipment, supervisory behavior, team expectations, time pressure, and the practical effort required to act responsibly. An employee may recognize the importance of conserving energy or reducing waste but still hesitate to act if the correct response is unclear, inconvenient, or not supported by the prevailing work culture.

Employees' environmental behavior is influenced not only by organizational policies but also by what they see happening around them. When colleagues support environmental commitments in practice, employees may be more likely to regard responsible behavior as a normal and personally meaningful part of their work. Personal norms appear to play an important role in connecting these organizational and social influences with individual behavior [3]. This means that an employee's actions cannot be viewed in isolation. They develop within a wider working environment shaped by team routines, leadership example, and organizational priorities [4, 5]. Recent research has extended this discussion by drawing attention to voluntary environmental contributions beyond formal job requirements, as well as human-resource practices that encourage responsible behavior throughout the organization [6].

The problem, therefore, is not simply that organizations need to communicate more. Rather, they need to communicate in such a way that employees can relate to their responsibilities and working conditions. People are more likely to take sustainability seriously when they understand the consequences of their choices, know what action is within their control, and feel that their contribution is both legitimate and valued. They also look to supervisors and coworkers for affirmation that environmental responsibility is genuinely part of doing the job well. This is especially important in industrial settings, where environmental concerns must be considered alongside safety, product quality, cost pressures, maintenance demands, and the need to keep production running [7]. The central challenge is to make sustainability meaningful within these realities rather than leaving it as a message that employees encounter but do not fully translate into practice.

1.3 Purpose and Guiding Questions

This paper explores how strategic communication may help employees connect organizational sustainability goals with the work they perform each day. Focusing on the Middle East steel industry, it

considers how psychological processes may turn environmental awareness into personally meaningful and sustained workplace behavior.

The discussion is guided by the following three questions:

1. How can sustainability communication connect environmental goals with the everyday realities of industrial work?
2. What psychological processes may help employees move from general awareness to voluntary and sustained pro-environmental behavior?
3. What communication practices can organizations use to build and sustain a shared culture of environmental responsibility?

As shown in Figure 1, the analysis follows a structured conceptual pathway. It begins by defining the organizational problem, then integrates relevant theories and examines common industrial communication practices. The resulting insights are organized into five propositions, which form the basis of SPE and SPEM. The detailed analytical procedure is explained in Section 3.

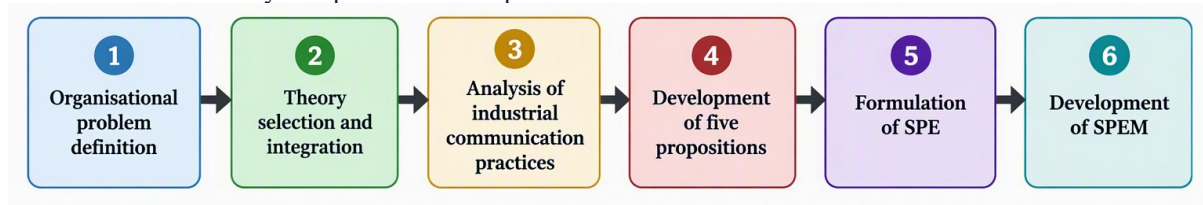


Figure 1. Methodology overview of the conceptual analysis.

2. CONCEPTUAL FOUNDATIONS

2.1 Environmental Psychology: Behavior in Context

Environmental psychology explores how people's surroundings influence their thoughts, feelings, and behavior. It begins with a simple idea: people's behavior is shaped partly by the surroundings in which they live and work [1]. This is especially relevant in a steel plant, where environmental decisions are rarely made under ideal conditions. Employees work with tools and facilities available to them and follow routines that may already be firmly established. Their choices may also be affected by time pressure, safety concerns, instructions from supervisors, and the practices they observe among coworkers.

This perspective shows why environmental responsibility cannot be explained by personal attitude alone. An employee may care about reducing waste or conserving energy but still find it difficult to act when the process is inconvenient, responsibility is uncertain, or production demands take priority. The conduct of supervisors and coworkers also sends a strong message about what the workplace genuinely values. When environmental concerns are consistently set aside, employees may conclude that such concerns are less important than meeting immediate operational targets. A positive attitude is therefore more likely to influence behavior when the working environment provides clear guidance, practical opportunity, and visible organizational support [2, 7, 8].

2.2 Intention, Norms, and Perceived Control

Employees are more likely to act when they intend to do so, feel supported by workplace norms, and believe they have the ability and opportunity to make a difference.

Knowing that environmental action is important does not necessarily mean that an employee will act. According to the theory of planned behavior, the intention to act is shaped by three considerations: how a person views the action, whether important people around them expect it, and whether it feels possible in practice [9]. In a steel plant, an employee may support waste reduction but still hesitate when the required action appears to conflict with production demands. Intention is more likely to develop when employees can see the value of the action, recognize that it is taken seriously by supervisors and coworkers, and feel that they have the practical means and authority to follow it through.

Communication can support this condition. Employees need a clear explanation of why a particular action matters within their work area. They also need to see that the same expectation is reflected in everyday decisions and in the conduct of those around them. This is where workplace norms become important. Descriptive norms arise from what employees observe others doing, while injunctive norms concern what the group openly approves or expects [10]. The difference matters in practice. A poster may state that waste should be separated, but if coworkers routinely ignore the requirement and supervisors say nothing, the behavior employees observe is likely to carry more weight than the printed message.

Environmental communication is therefore most credible when the action being encouraged is both openly supported and consistently practiced within the workplace.

2.3 Social Identity and Workplace Norms

Employees are more likely to embrace sustainability when it reflects their sense of belonging and is supported by the everyday behavior of leaders and colleagues.

Social identity theory helps explain how sustainability can gradually become part of “how we work here.” Employees are more likely to feel connected to their organization when leaders and colleagues put their values into practice [11]. When environmental responsibility is visible in everyday decisions, sustainability begins to feel like a standard part of work. Employees may then see sustainable practice not as an additional obligation, but as a natural part of accomplishing their job. However, if sustainability is discussed mainly during campaigns or special events, employees may regard it as corporate messaging rather than a genuine workplace expectation. Leaders play a pivotal role in shaping this perception. When they demonstrate environmental commitment through their own decisions and behavior, employees are more likely to adopt similar pro-environmental practices [12, 13].

2.4 Psychological Ownership and Meaningful Contribution

Employees develop a stronger sense of ownership when they can contribute ideas, influence action, and see that their efforts make a meaningful difference.

Psychological ownership develops when employees begin to feel that an idea or initiative belongs to them, even when they do not formally own it [14]. Recent research also links psychological ownership with employee green behavior in supportive organizational settings [15]. This sense of ownership is more likely to grow when people are involved, understand the purpose of the work, and have some influence over how it is carried out. Sustainability programs may therefore become more meaningful when employees are invited to identify problems, suggest practical improvements, and see what happens to their ideas. Asking for suggestions is not enough. Employees need to know that their input has been heard and, where possible, acted upon.

Engagement theory adds another important perspective. People tend to give more of themselves to their work when they find it meaningful, feel safe enough to participate, and have the support and resources needed to make a difference [16]. Positive psychology further highlights the importance of personal strengths, purpose, and contribution. Environmental action can become a source of pride when employees see a clear connection between their everyday work and the wider protection of natural resources, local communities, and future generations [17]. Sustainability then becomes more than an organizational target. It gives employees a meaningful way to contribute to something beyond their immediate duties.

2.5 Strategic Communication as an Enabling System

Strategic communication may be understood as purposeful communication aligned with organizational objectives and stakeholder relationships [18]. Recent evidence also indicates that internal sustainability communication can strengthen employees’ role clarity and support green behavior [19]. In this analysis, its role extends beyond sharing information. Strategic communication helps employees understand the organization’s intentions, gives them space to express their views, and shows them what happens after they contribute ideas or act. It becomes more credible when the organization’s messages are supported by managerial decisions and everyday practices.

3. METHOD OF CONCEPTUAL CASE ANALYSIS

This manuscript adopts an interpretive conceptual approach, using a recurring organizational challenge as the case for analysis. It examines how steel organizations in the Middle East can make sustainability part of everyday work.

The paper does not report a clinical case, survey, interview study, or field investigation involving several companies. No participants were recruited, no personal information was collected, and no numerical data was used.

As summarized in Figure 1, the broader conceptual development comprises six stages, while the underlying analysis was conducted through four main analytical stages. First, the problem was defined around two closely related areas: how sustainability is communicated to employees and how such communication may encourage environmentally responsible behavior in daily work. Second, relevant

psychological theories were selected. Each theory helps explain a different part of the proposed process, including the influence of workplace conditions, intentions, social norms, psychological ownership, meaningful contribution, and communication.

Third, these theoretical ideas were considered alongside communication practices commonly found in complex industrial settings. These practices include employee briefings, awareness campaigns, leadership messages, recognition programs, suggestion systems, and feedback on environmental performance. The purpose was to understand how everyday communication may shape the way employees interpret sustainability and respond to it at work. Finally, the main insights were organized into a set of propositions and brought together within the proposed conceptual framework.

Unless supported by cited research, statements in the analysis should be understood as theoretically informed interpretations or practice-based propositions. The analysis does not use invented participants, fictional quotations, simulated findings, or unsupported percentages. Its contribution is therefore conceptual rather than empirical. It offers a structured explanation of how strategic communication may support employees' pro-environmental behavior. The proposed relationships can later be examined through ethically approved research involving employees in relevant organizational settings.

4. CASE NARRATIVE: WHERE SUSTAINABILITY COMMUNICATION COMMONLY BREAKS DOWN

Think of what often happens when a large industrial organization launches an internal sustainability campaign. Employees first hear about a new environmental target through an official announcement. Posters and digital screens carry the message, and the company newsletter explains why the target matters. Managers may also be asked to discuss it with their teams. Initial visibility is high. Several weeks later, however, the effect on routine practice remains uncertain.

Employees may remember the campaign slogan without knowing what they are expected to do differently in their individual work areas. Supervisors may support the environmental objective but find it difficult to give it proper attention when conversations are already dominated by safety, product quality, equipment maintenance, and production demands. Employees may also notice waste, leaks, or unnecessary use of resources, but hesitate to raise the matter because they do not know whether anyone will respond.

This does not necessarily mean that employees oppose sustainability. The problem may lie in the gap between the language used at the corporate level and the realities of the workplace. Corporate communication often speaks about emissions, circularity, and ESG performance. On the shop floor, however, environmental responsibility is experienced in far more immediate ways. If communication does not connect the wider environmental ambition with these familiar situations, the goal may continue to feel disconnected from employees' work.

Participation can lose its meaning in much the same way. Employees may be encouraged to submit ideas, but an invitation alone does not create involvement. When suggestions enter a system and are never mentioned again, employees are left wondering whether their input was considered. The same problem arises when campaign results are not shared or when recognition is based on the visibility of an activity rather than on a verified environmental improvement. Over time, employees may stop seeing the program as something to which they can genuinely contribute.

A psychologically informed approach therefore starts with the realities of work rather than with the campaign message. It considers what employees notice during their daily tasks, which decisions they can influence, what pressures compete for their attention, and whose behavior shapes expectations within the team. From this perspective, communication is not a single announcement or a short campaign. It is an ongoing process through which environmental goals are explained, discussed, translated into practical action, and followed by meaningful feedback.

The five propositions developed in the following analysis are organized around this process.

5. ANALYTICAL THEMES AND PROPOSITIONS

5.1 Making Sustainability Understandable

A clear understanding of environmental goals is the first step towards meaningful action. Messages should translate environmental goals into familiar actions, practical consequences, and language that employees use in their everyday work. "Reduce resource consumption" is broad; identifying where material, water, or energy may be conserved within a particular set-up is more understandable and actionable. Visual cues and toolbox discussions are most useful when they help employees understand what to do at the point of

action. They are less effective when they simply repeat corporate messages without connecting them to the realities of daily work.

Proposition 1. Sustainability communication is more likely to strengthen employees' environmental awareness when broad organizational goals are clearly linked to the choices they make and the consequences of their everyday work.

5.2 Connecting Awareness with Perceived Control

Understanding an environmental issue does not always lead to action. Employees also need to know what they can do, how to act without creating safety or operational risks, and whom to approach when the matter is beyond their authority. This reflects the role of perceived behavioral control in the theory of planned behavior [9]. Recent research applying this theory also highlights the relevance of green behavioral intention and environmental self-efficacy [20]. Communication should therefore make these boundaries clear. It should explain which decisions employees can make, how they can raise wider concerns, and whether responsible action will receive managerial support, especially when responsible action interrupts a routine or calls an established practice into question.

Proposition 2. Environmental awareness is more likely to become behavioral intention where employees perceive that responsible action is feasible, legitimate, and supported.

5.3 Converting Participation into Ownership

Participation becomes meaningful when employees can influence a specific workplace issue and see what happens because of their contribution [14]. Suggestion schemes, green teams, and improvement workshops can strengthen their sense of ownership, but only when the organization responds to the ideas raised. Even when a suggestion cannot be implemented, a timely and honest explanation shows that the employee's effort was valued. Silence, however, can leave employees feeling that their involvement was invited merely for appearance rather than for genuine change.

Proposition 3. Employees develop a stronger sense of ownership when they are heard and can see that the organization acts on their contributions.

5.4 Reinforcing Social Norms Through Credible Example

What employees observe in the workplace often carries more weight than they are formally told [10]. If a manager talks about reducing waste but regularly overlooks wasteful practices, employees are likely to follow the behavior rather than the message [13]. The opposite is equally important. When leaders and colleagues consistently make responsible choices, those choices begin to shape the accepted way of working. Thoughtful recognition helps sustain this change by showing exactly what an employee or team has contributed and why it matters.

Proposition 4. Pro-environmental workplace norms become stronger when leaders act consistently, colleagues model responsible behavior, and recognition is based on demonstrated environmental contributions.

5.5 Sustaining Meaning Through Feedback

Feedback keeps employees engaged by showing them that their efforts matter and contribute to meaningful environmental progress.

Employees are more likely to remain committed when they can see that their efforts matter. Feedback may highlight a completed improvement, share a lesson learned, or explain how local action contributes to wider organizational and community outcomes. The aim is not to exaggerate the effect of every small step, but to show honestly how individual efforts can support broader environmental progress. This can strengthen employees' sense of purpose, pride, and willingness to continue [16, 17].

Proposition 5. Timely and trustworthy feedback helps turn occasional employee participation into lasting involvement and commitment.

Table 1 brings together the five propositions developed in the preceding analysis. It shows the main psychological influence associated with each proposition and identifies the theoretical perspective from which it is derived. The table therefore provides a concise overview of how understanding, perceived control, ownership, workplace norms, and meaningful feedback are connected within the proposed argument.

Table 1. Summary of propositions, key psychological influences, and theoretical basis.

No.	Proposition (abbreviated)	Key psychological influence	Theoretical basis
P1	Translating goals into task-specific consequences strengthens awareness	Clear understanding and workplace relevance	Environmental psychology [1], [2]
P2	Perceived feasibility and legitimacy convert awareness into intention	Ability to act	Theory of planned behavior [9]
P3	Voice with visible follow-through builds ownership	Psychological ownership through control and participation	Psychological ownership [14]; engagement [16]
P4	Leader and peer modeling strengthen norms	Descriptive and injunctive normative influence	Social identity [11]; normative conduct [10]; green leadership [13]
P5	Credible feedback sustains engagement	Meaning, pride, and persistence	Engagement [16]; positive psychology [17]

As shown in Table 1, the propositions explain a connected process rather than five isolated communication activities. The process begins by making sustainability understandable and actionable, then considering employees' ability to act, opportunities to develop ownership, the influence of leaders and colleagues, and the role of feedback in sustaining involvement. Together, these propositions provide the conceptual foundation for SPE.

6. SUSTAINABLE PSYCHOLOGICAL ENGAGEMENT: A PROPOSED CONSTRUCT

This study proposes **Sustainable Psychological Engagement (SPE)** as a provisional construct. It reflects the way employees think, feel, and act in relation to sustainability at work. Employees demonstrate SPE when they understand the environmental impact of their role, see responsible practice as something they and their colleagues value, and willingly continue making environmentally responsible choices.

SPE is expressed through three closely connected dimensions: cognitive, emotional, and behavioral engagement. Psychological ownership and sustainability commitment are treated as intermediate psychological states that may support the development and continuity of these dimensions. Table 2 defines each dimension and illustrates how it may appear in employees' everyday work. Cognitive engagement concerns employees' understanding of the environmental consequences of their roles. Emotional engagement reflects personal relevance, responsibility, pride, and connection with a shared purpose. Behavioral engagement refers to employees' willingness to raise concerns, suggest improvements, support others, and continue responsible practices over time.

Table 2. Proposed dimensions of Sustainable Psychological Engagement.

Dimension	Description	Indicative manifestation
Cognitive engagement	Understanding environmental priorities, their consequences, and the relationship between organizational goals and one's own work	Employees can recognize how their everyday tasks affect energy utilization, water consumption, waste generation, and emissions.
Emotional engagement	Experiencing personal relevance, responsibility, pride, and connection with a shared sustainability purpose	Employees see caring for the environment as part of doing their job well.
Behavioral engagement	Choosing, supporting, and sustaining responsible practice, including speaking up and assisting others to act	Employees take the initiative to raise concerns, suggest improvements, and sustain responsible practices.

Table 2 shows that the three dimensions are distinct but closely related. SPE is expected to become stronger when understanding, emotional connection, and continued action develop concurrently. The examples presented in the table are indicative manifestations for future empirical examination and should not be interpreted as validated measurement items.

SPE is proposed as a new way of understanding employees' engagement with sustainability and should not yet be treated as an established or validated construct. It brings together related ideas from environmental psychology, organizational behavior, and strategic communication. Its distinct value can only be determined through future empirical research that examines whether SPE differs meaningfully from existing concepts such as work engagement, environmental commitment, psychological ownership,

and organizational citizenship behavior toward the environment and related forms of workplace pro-environmental behavior [4, 6, 14, 16, 21].

Within the proposed framework, psychological ownership and sustainability commitment are not treated as separate dimensions of SPE. Instead, they represent intermediate psychological states through which environmental awareness may develop into deeper engagement. Psychological ownership reflects the feeling that employees have a meaningful stake in sustainability initiatives, while sustainability commitment reflects their willingness to support the organization's environmental goals over time. These states may strengthen the three dimensions of SPE: cognitive understanding of environmental responsibility, emotional connection with its purpose, and continued behavioral involvement in responsible workplace practices. SPE therefore represents the broader state of engagement that may emerge when awareness is supported by ownership, commitment, and opportunities for meaningful action.

7. THE SUSTAINABLE PSYCHOLOGICAL ENGAGEMENT MODEL

Figure 2 presents the Sustainable Psychological Engagement Model and illustrates how strategic communication may create conditions that support the development of SPE. The proposed pathway begins when communication helps employees connect environmental goals with their daily tasks and choices. This understanding may encourage psychological ownership when employees can contribute ideas, influence action, and see that their involvement matters. Ownership may then strengthen commitment to environmental responsibility. Together, these psychological states may support the cognitive, emotional, and behavioral engagement represented by SPE and encourage sustained pro-environmental practice.

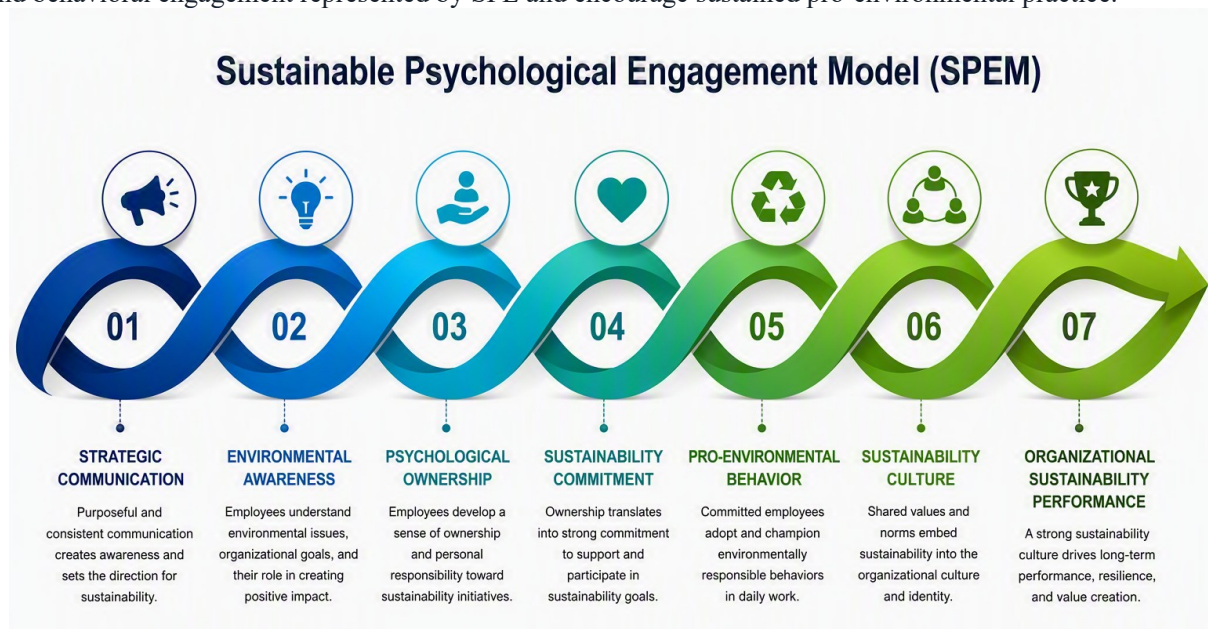


Figure 2. The Sustainable Psychological Engagement Model.

As illustrated in Figure 2, SPEM should not be read as a fixed causal chain. The arrows represent proposed relationships that require empirical testing. Feedback may also operate across the pathway. For example, observing the results of an environmental improvement may deepen employees' awareness, while a supportive workplace culture may strengthen ownership and commitment. The model is therefore intended as a flexible framework for intervention and future research. The model proposes that strategic communication supports environmental awareness, psychological ownership, and sustainability commitment, which may foster SPE and encourage sustained pro-environmental practice.

8. PRACTICAL IMPLICATIONS

8.1 For Leaders and Line Managers

- Translate sustainability commitments into a small number of operationally relevant behaviors.
- Discuss trade-offs openly rather than implying that environmental action is effortless.

- Model the standards communicated to employees and respond constructively when concerns are raised.

8.2 For Communication Teams

- Design strategic communication around psychologically meaningful narratives and practical behaviors, rather than focusing only on awareness and visibility.
- Use narratives to illustrate verified practices rather than as a substitute for evidence.
- Build two-way feedback into campaigns, and communicate what changed because of employee participation.

8.3 For Human Resources and Organizational Psychologists

- Make sustainability part of the employee journey by explaining relevant responsibilities during onboarding, linking them to individual roles, supporting them through learning, and recognizing genuine contributions.
- Look beyond how many employees receive a message. Consider whether they feel able to act, take ownership, find purpose in their contribution, and see environmental responsibility supported by their team.
- Give employees a safe and respectful space to raise environmental concerns. Participation should remain voluntary, and no one should fear criticism or negative consequences for speaking up. Fair treatment of employee voice is, more broadly, a question of justice in the changing world of work [22].

8.4 For Sustainability Functions

- Collaborate with operations, human resources, and communication teams from the design stage, rather than involving them only when results are reported.
- Combine environmental indicators with carefully validated behavioral measures. Sensor-based environmental monitoring can supply the environmental side of this pairing [23].
- Claims of behavioral change should be supported by evidence of changes in workplace practice, not only by communication reach or participation figures.

9. LIMITATIONS

This paper presents a conceptual argument and does not claim to show how widely the proposed relationships occur, how strong their effects may be, or whether one factor directly causes another. The steel industry provides the setting for developing the discussion, but the ideas presented here should not be treated as representative of every organization or country in the Middle East.

Insights drawn from professional reflection can bring overlooked workplace concerns to light. At the same time, they may give greater attention to issues that are more visible from the author's own experience than from the perspectives of others. A similar limitation applies to publicly available sustainability discussions. These sources tend to focus on formal policies and organizational commitments, while offering far less insight into the everyday tensions, competing demands, and practical challenges employees experience at work. As a result, the information available for interpretation may not present a complete picture.

SPE also remains a proposed construct. It has not yet been translated into a measurement scale or tested through empirical research. Some of its dimensions may overlap with existing concepts, and the relationships presented in SPEM may develop differently across workplace settings. The model should therefore be viewed as a starting point for further investigation rather than a confirmed explanation of how sustainable psychological engagement develops.

10. DIRECTIONS FOR EMPIRICAL VALIDATION

Before SPE can be used as a reliable measure or diagnostic tool, it will need to be developed and tested through several stages of research. The process could begin with qualitative interviews to explore whether employees recognize the proposed cognitive, emotional, and behavioral dimensions in their own workplace experiences. These conversations may also reveal aspects of sustainable engagement that the current framework has not yet considered.

The findings could then guide the development of suitable measurement items. Expert review and cognitive interviews would help determine whether each item is theoretically sound, clearly worded, and understood by employees as intended. A pilot survey could provide the data needed for exploratory factor analysis, followed by confirmatory factor analysis using a separate sample. Structural equation modeling could then examine the proposed relationships and assess whether SPE is meaningfully different from related constructs.

Longitudinal and intervention studies would be especially valuable because SPEM seeks to explain how engagement develops and changes over time.

Research across different industries, cultures, and workforce settings would also help determine whether the proposed pathway extends beyond the steel sector or needs to be adapted to different organizational contexts.

11. CONCLUSION

Sustainability in industrial organizations cannot be secured through technology or communication alone. Lasting progress depends on whether employees can see how their daily work affects the environment, feel confident in their ability to act, and recognize environmental responsibility in the behavior of leaders and colleagues. They also need honest feedback showing that their efforts have been noticed and have contributed to meaningful improvement. These conditions are especially relevant to the Middle East steel sector, where environmental performance is shaped not only by major technological investments, but also by the many operational choices made each day.

The proposed SPE framework places communication within the everyday psychological and behavioral environment of work. Communication, from this perspective, does more than raise awareness. It helps employees understand what sustainability means for their roles, gives them confidence to act, encourages a sense of ownership, strengthens shared workplace norms, and connects individual effort with a wider purpose. The paper does not claim that this framework has already been proven. Rather, it offers SPE for careful examination, critical discussion, and empirical testing. If future research supports the construct, SPE may provide organizations with a more psychologically grounded basis for designing sustainability initiatives. It may also offer a more credible way of judging whether communication has simply attracted attention or has genuinely become part of how people think, decide, and work together.

DECLARATIONS

Ethics Approval

This conceptual paper did not involve human participants, personal records, interviews, focus groups, or primary data collection. Institutional ethics approval was therefore not required. Any future empirical study arising from this framework will obtain appropriate ethics approval, informed consent, and organizational permission prior to data collection.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The author declares no conflict of interest and no competing interests relevant to the content of this article.

Data Availability

No datasets were generated or analysed during this study. All material supporting the analysis is contained within the article and its reference list.

Use of Artificial Intelligence

Language-editing assistance was used in preparing the manuscript for submission. All conceptual content, theoretical development, analysis, and interpretation are the author's own, and the author has reviewed and verified the final text and accepts full responsibility for it.

REFERENCES

- [1] Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology*, 65, 541–579. <https://doi.org/10.1146/annurev-psych-010213-115048>
- [2] Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309–317. <https://doi.org/10.1016/j.jenvp.2008.10.004>
- [3] Mouro, C., & Duarte, A. P. (2021). Organisational climate and pro-environmental behaviours at work: The mediating role of personal norms. *Frontiers in Psychology*, 12, Article 635739. <https://doi.org/10.3389/fpsyg.2021.635739>
- [4] Norton, T. A., Parker, S. L., Zacher, H., & Ashkanasy, N. M. (2015). Employee green behavior: A theoretical framework, multilevel review, and future research agenda. *Organization & Environment*, 28(1), 103–125. <https://doi.org/10.1177/1086026615575773>
- [5] Ones, D. S., & Dilchert, S. (2012). Environmental sustainability at work: A call to action. *Industrial and Organizational Psychology*, 5(4), 444–466. <https://doi.org/10.1111/j.1754-9434.2012.01478.x>
- [6] Zaidi, H., & Azmi, F. T. (2024). Workplace pro-environmental behaviour: A review and bibliometric analysis. *International Journal of Productivity and Performance Management*, 73(1), 158–185. <https://doi.org/10.1108/IJPPM-09-2021-0507>
- [7] Unsworth, K. L., Davis, M. C., Russell, S. V., & Bretter, C. (2021). Employee green behaviour: How organizations can help the environment. *Current Opinion in Psychology*, 42, 1–6. <https://doi.org/10.1016/j.copsyc.2021.02.006>
- [8] Carbone, E., Feraco, T., Innocenti, I., Musicanti, M., Volpe, P., & Meneghetti, C. (2024). Green workplace behaviors: Can employees make the difference? *Sustainability*, 16(24), 11188. <https://doi.org/10.3390/su162411188>
- [9] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- [10] Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58(6), 1015–1026. <https://doi.org/10.1037/0022-3514.58.6.1015>
- [11] Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, 14(1), 20–39. <https://doi.org/10.5465/amr.1989.4278999>
- [12] Chen, T., & Wu, Z. (2022). How to facilitate employees' green behavior? The joint role of green human resource management practice and green transformational leadership. *Frontiers in Psychology*, 13, 906869. <https://doi.org/10.3389/fpsyg.2022.906869>
- [13] Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of Organizational Behavior*, 34(2), 176–194. <https://doi.org/10.1002/job.1820>
- [14] Pierce, J. L., Kostova, T., & Dirks, K. T. (2001). Toward a theory of psychological ownership in organizations. *Academy of Management Review*, 26(2), 298–310. <https://doi.org/10.5465/amr.2001.4378028>
- [15] Kanojia, H., & Dhiman, N. (2025). Does ethical leadership foster employee green behaviour? The mediating role of psychological ownership. *Indian Journal of Corporate Governance*, 18(1), 110–131. <https://doi.org/10.1177/09746862251314963>
- [16] Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692–724. <https://doi.org/10.5465/256287>
- [17] Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14. <https://doi.org/10.1037/0003-066X.55.1.5>
- [18] Hallahan, K., Holtzhausen, D., van Ruler, B., Verčič, D., & Sriramesh, K. (2007). Defining strategic communication. *International Journal of Strategic Communication*, 1(1), 3–35. <https://doi.org/10.1080/15531180701285244>
- [19] Sun, R., Lee, Y., & Dong, E. (2025). Sustainability and internal communication: Leveraging employee green behaviors. *Public Relations Review*, 51(2), 102565. <https://doi.org/10.1016/j.pubrev.2025.102565>
- [20] Song, D., Bai, Y., Wu, H., & Wang, X. (2023). How does perceived green human resource management impact employees' green innovative behavior? From the perspective of theory of planned behavior. *Frontiers in Psychology*, 13, 1106494. <https://doi.org/10.3389/fpsyg.2022.1106494>
- [21] Tang, G., Ren, S., Wang, M., Li, Y., & Zhang, S. (2023). Employee green behaviour: A review and recommendations for future research. *International Journal of Management Reviews*, 25(2), 297–317. <https://doi.org/10.1111/ijmr.12328>

- [22] Pandey, J. K., & Kumar, R. (2025). Governing the algorithmic agent: Confronting overt and covert challenges to justice and the future of work. *International Journal of Law Management & Humanities*, 8(4), 1974–1984. <https://doi.org/10.10000/IJLMH.1110648>
- [23] Shaheen, M., Pandey, J. K., & Tran, T. A. (2026). *Intelligent systems and sustainable solutions for AIoT-powered environmental monitoring*. IGI Global.