

Unraveling the Black Box: The Nexus between Sustainable HR management Practices and Sustainable Performance

Abstract

In solving the triple-bottom-line concept of sustainability, which encompasses the concerns of the modern world, corporations are increasingly incorporating principles of sustainability into their strategies; yet, this presents challenges for the manufacturing industry with limited resources. Despite the increasing academic acknowledgment of SHRM, the impact of SHRMP on an organization's sustainability performance has not been well investigated. Based on signaling theory, we examine the impact of SHRM on the sustainability performance of the organization. Analysis of survey data from 287 workers in the industrial sector indicated that sustainable practices substantially mediate the relationship between SHRMP, managerial competence, and sustainable performance. We analyze the contributions to theory and practice and delineate prospective research areas.

Keywords: sustainable HRM practices, performance, managerial competency

Introduction

In light of the triple-bottom-line, the framework of sustainability, challenges related to ecological, social, and economic factors, alongside the impacts of the COVID-19 pandemic, global warming, and current demands for social as well as environmental focusing from corporations, there is an urgent necessity of putting emphasis on business sustainability practices while enhancing sustainability performance (Ren et al., 2023). Sustainable human resource management (HRM), which involves the development and implementation of sustainable HR management practices (SHRMP), can improve organizational sustainability performance by prioritizing profitability while safeguarding human capital and the surrounding ecosystem (Stahl et al., 2020). Nonetheless, a limitation of current SHRM research is its deficiency in a comprehensive examination of the influence of SHRM on sustainability performance inside businesses (Ren and Jackson, 2020). This reflects the HRM performance black box problem in the context of sustainability, highlighting the necessity to investigate the causal processes linking SHRM to sustainability performance inside businesses (Ren, Jiang & Tang, 2022).

Nonetheless, the majority of SHRM literature predominantly reflects a top-down viewpoint, neglecting the importance of managers and employees in improving sustainable performance (Mousa & Othman, 2020). This constitutes a significant supervision, as managers are intimately engaged in the daily execution of organizational initiatives and serve as a liaison between the enterprise and its workers (Alfes et al., 2013; Smirti Kutaula et al. 2024). Consequently, analyzing their capabilities and the function they serve in overseeing the execution of sustainable initiatives is essential (Syed et al., 2020). Furthermore, we consider elements such as staff sustainability

performance and long-term perspective, which may influence sustainability practices as well as performance. Employees are essential to an organization by advocating for and engaging in sustainability projects and taking on leadership roles, therefore aiding in the achievement of the organization's sustainability goals (Paillé & Francoeur, 2022). Consequently, examining the impacts of these internal players on the integration of sustainability into business procedures is essential, as their attitudes may affect the adoption of sustainability initiatives (Stahl et al., 2020).

Moreover, a long-term approach, characterized by the degree to which future implications are factored into decision-making, might influence the adoption of sustainability measures (Garavan et al., 2023; Awwad Al-Shammari et al., 2022). An extended time horizon may lead the organization to prioritize future sustainability implications over present financial advantages (Graafland & Noorderhaven, 2020). The significance of long-term orientation in relation to sustainability performance is currently insufficiently explored in the existing HRM and sustainability literary work, necessitating additional investigation. Furthermore, employees frequently maintain stronger connections with their colleagues (Martdianty, Coetzer & Susomrith, 2020), who are integral to their support network within the firm. Colleagues can shape employees' perceptions of company processes, thus affecting how they think and act. Nevertheless, although colleagues may help about sustainability practices including managerial competency, their position remains insufficiently examined in the current literature.

We utilize signaling theory, focusing on the reduction of information asymmetry among various stakeholders (Guest et al., 2021), as the foundation for our hypotheses. We contend that when sustainability is emphasized in organizational strategy, it affects the SHRMP and the behaviors of managers, staff members, and colleagues. Consequently, this may influence the entire sustainability practices within the organization, thereby impacting its sustainability performance. Furthermore, organizations convey signals regarding their commitment to sustainability to internal stakeholders, indicating whether they possess more progressive values, and this also affects the correlation between sustainability practices as well as sustainability performance.

The categorization of manufacturing sectors in Iraq comprises: meals, drinks, and cigarettes industries; the woodworking and furniture industry; clothing, and leather industries and printing industries; construction industries; basic metal industries; and other manufacturing sectors. In 2021, investor investment in Iraq's manufacturing industry constituted 0.4% of the gross domestic product, calculated at constant prices, indicating a base year typically characterized by stability. This percentage is comparatively low when assessed against another economy with similar resources (Ministry of Planning, 2004-2021). The significant role of the manufacturing industry in national economies has raised concerns among economic policymakers, owing to the sector's characteristics and benefits in fostering sustainable growth and establishing a production foundation that meets domestic demand needs, substitutes imports, and enhances the trade balance through export activities, ultimately leading to diversification of income (Hammad, & Al Hiyali, 2023). In 2021, the proportion of industrial product exports constituted a mere 0.2% of total exports, indicating a significantly low figure for limited products. Consequently, the decline in productivity within the private industry of manufacturing, in conjunction with the increase in the

public sector, adversely affected the trade balance by necessitating increased imports to satisfy the requirements of the Iraqi economic growth (Central Bank, 2004-2021).

In this process, we provide multiple contributions. The present research is the inaugural investigation to propose and examine SHRMP and managerial competency as precursors to sustainability practices, which subsequently mediate their association with sustainability performance using a novel application of signaling theory. Ultimately, our research offers significant perspectives into Strategic Human Resource Management within the manufacturing sector in Iraq, a burgeoning economy that has been inadequately addressed in the current literature.

Theoretical Background

This research employs signaling theory (Spence, 1973) as its primary theoretical framework, emphasizing the importance of information and communication in making sound decisions by people from within as well as outside the organization (Guest et al., 2021). It asserts that signals are sent by a sender and understood by a receiver, highlighting three essential components: the signaler, the signal, and the person who receives it (Drover, Wood & Corbett, 2018). When sustainability constitutes a significant aspect of the managerial agenda, it is manifested through SHRMP, which is defined as 'the characteristics of an HRM system that communicate to employees what is needed and feasible responses, fostering a collective understanding of expectations' (Bowen & Ostroff, 2004).

Through this perspective, we contend that senior managers disseminate knowledge to other managers, employees, or colleagues, potentially influencing their perceptions of the firm, its practices, and its strategy (Guest et al., 2021). When firms engage in sustainability activities, they motivate people given priority the agenda, fostering active participation from managers and workers (Carmeli et al., 2017). Moreover, such conclusions may affect the organization's sustainability practices, hence impacting performance in sustainability (Ergene, Banerjee & Hoffman, 2021).

Hypothesis development

Existing research has shown that HRMP serves as a catalyst for organizational success (Aust, Matthews & Muller-Camen, 2020). Although study data increasingly supports the connection between HRMP and organizational success in major enterprises, there is less understanding of how these mechanisms correlate with industry (Elorza et al., 2022). In the realm of SHRMP, it is essential to prioritize the complete growth of the economy, society, and natural capital rather than a single focus on maximizing profitability (Ren et al., 2023). Implementing sustainable practices requires a progressive transformation in workplace attitudes and behaviors, facilitated by SHRMP including recruitment and selection, talent management, and reward and recognition management (Zhang, Zhang & Daim, 2023).

According to signaling theory, SHRMP represents a staff member devotion to the sustainability of the business, prompting a shift towards comprehensive sustainability policies (Connelly et al., 2011). The implementation of ongoing training and development aimed at enhancing workers'

skills and knowledge about sustainability within the organization will direct the organization's vision to those values (Ehnert et al., 2016). Likewise, performance evaluations should document workers' sustainable practices, such as suggesting novel product packaging concepts. Consequently, HRMP that include sustainability strategies may promote enterprise sustainability practices by fostering appropriate behavior at work. Consequently, we postulate that

H1: Sustainable HRM practices are positively associated with sustainability practices

Managerial competence denotes a supervisor's proficiency in executing the abilities necessary for a particular role (Spencer & Spencer, 2008). It is a multi-faceted concept that includes technical, managerial, and leadership abilities (Levenson et al., 2006). Although sustainability literature has mostly concentrated on top management responsible for developing the company's environmental sustainability approach (Ren, Jiang & Tang, 2022), the immediate managers are crucial in executing this plan (Kramar, 2014). Immediate leaders serve as direct business representatives, conveying signals to subordinates with whom they often engage (Gilbert, De Winne & Sels, 2015). Consequently, according to signaling theory (Spence, 1973), we assert that the management competence of direct managers will have a positive correlation with sustainable practices for the following reasons.

Management competence indicates the immediate managers' management skills, decision-making capabilities, and strategic vision. Research has shown the challenges involved in firms' transition to sustainability (Ren & Jackson, 2020). Proficient supervisors are more inclined to comprehend the intricacies of incorporating sustainability into corporate strategy and operations. A fundamental principle of signaling theory highlights the significance of signals in situations of inadequate dispersed knowledge (Spence, 1973). Managerial competence is a blend of abilities, qualities, and knowledge that empower managers to successfully synchronize their objectives with the the business's sustainability initiatives. Proficient supervisors have a profound comprehension of the technological and strategic dimensions of sustainability, enabling them to effectively communicate the integration of these concepts into their organization's sustainability policies. This therefore communicates to subordinates specific demands about their actions and the methods to attain the sustainability objective (Kim, Su and Wright, 2018). Consequently, we propose that

H2: Managerial competency is positively associated with sustainability practices.

Business sustainability practices can be described as the actions of firms that enhance the social, environmental, and economic dimensions of sustainability by addressing the demands that stakeholders face in the present while ensuring the needs of future generations are not compromised. (Miska, Szocs, & Schiffinger, 2018). For example, when firms adopt ecologically sustainable practices like the meticulous disposal of dangerous materials, it may increase sustainability performance, involving enhanced overall quality and superior waste management (Dey et al., 2020). Nevertheless, the majority of organizational sustainability research has focused on the ecological consequences of these practices, neglecting the social and economic components of sustainability (Ren, Tang & Jackson, 2018). To address this gap, we provide a holistic perspective on these practices and their performance, integrating economic, social, and environmental aspects (Ren et al., 2023).

Leveraging signaling theory, we argue that effective implementation of sustainability practices enables the firm to convey explicit signals on its strategic goals, which are interpreted and assimilated by workers, reflected in how they perform on sustainability. Other stakeholders also perceive these signals positively (Westerman et al., 2020). Organizations using social sustainability strategies may include social factors in choosing suppliers, therefore building trust and strengthening their reputation among stakeholders. This may result in favorable economic outcomes for the firm via heightened sales. Consequently, we postulate that

H3: Sustainability practices are positively associated with sustainability performance

HRMP are recognized for offering several options to improve organizational performance and provide a unique competitive advantage (Jerónimo, de Lacerda & Henriques, 2020). The processes between HRMP and the performance of the organization, sometimes termed the 'black box', need ongoing scrutiny (Chowhan, 2016). Although several SHRM studies have concentrated on economic effects by analyzing intervening factors including engagement, psychological contract, and work satisfaction, there is a paucity of study exploring societal or environmental repercussions (Ren, Jiang & Tang, 2022). Researchers advocate for a systematic evaluation of the effects of sustainable HRM from a comprehensive viewpoint, including economic, social, and environmental dimensions, and emphasize the need of exploring novel mechanisms for mediation (Aust, Matthews & Muller Camen, 2020).

Organizational sustainability initiatives, like creative waste management at industrial facilities, rely on hiring qualified people or educating existing staff in these procedures. This will result in the acquisition and growth of human capital, hence boosting sustainability performance, especially enhanced waste management (Stahl et al., 2020). Managerial competencies, including communication, leadership qualities, developmental orientation, and expertise, can enhance employee engagement with the long-term sustainability of agenda by conveying the organization's dedication to economic, social, and environmental responsibilities (Hassan, 2020). For instance, when managers endeavor to eradicate biases related to age or gender, such measures foster attitudes of equity and fairness among workers (Barrena-Martínez, et al., 2019). Employees may also have increased motivation and commitment to the firm, hence optimizing their efforts in adopting sustainable principles. Thus, this may result in sustainable performance via the improvement of staff productivity and the reduction of turnover.

Signaling theory offers a persuasive rationale for how SHRMP and management competencies might enhance sustainability performance via the intermediary function of sustainability practices. This is why HRM practices emphasize on human abilities and expertise, which transfer into attaining sustainable performance, linked by sustainability practices. Compensation and incentive systems linked to sustainability performance may motivate workers to engage in sustainable activities. Managers can demonstrate an organizational willingness to sustainability through their practical and communication abilities, imaginative thinking, and a risk-taking innovative attitude, thereby fostering staff engagement with procedures that enhance sustainability performance. This results in the following hypothesis:

H4: Sustainability practices mediate the relationship between sustainable HRM practices, managerial competency and sustainable performance.

Research Methodology

The current study is a quantitative with cross-sectional design. We used a five-point Likert scale, 1 = strongly disagree to 5= strongly. Data gathered from employees in manufacturing industry to evaluate the study's hypotheses. Moreover, a probability sampling approach, namely cluster sampling, was used for data collecting. Iraq has 18 governorates. Each governorate constitutes a distinct cluster. The workforce included around 13,200 workers. The sample size consisted of 287 persons as per the Krejcie and Morgan (1970) table. Thus, 35% of surveys were completed in each cluster. Thirty-eight percent of the personnel were male, twenty-nine percent were under the age of 40, and thirty-seven percent had over 18 years of professional experience in the manufacturing business. Nevertheless, the demographic factors were included as control variables.

Measure

Sustainable HRM practices were assessed using six items developed by Dumont, Shen, and Deng (2017), including several activities like as training, performance assessment, and career development, primarily pertaining to SHRM. Due to the nascent status of the SHRMP scale, we modified it by substituting 'green' with 'sustainability' in the statements, since sustainable HRM and green HRM are often seen as synonymous (Aust, Matthews & Muller-Camen, 2020). Managerial competence was assessed using 10 questions including the three aspects (functional, management, and leadership abilities) defined by Spencer and Spencer (2008). Sustainability practices were assessed using 13 items, including the recommended practices from the sustainability literature (Saha, Dey & Papagiannaki, 2021). Sustainability performance was assessed using the 10-item scale established by Dey et al. (2020).

Data Analysis

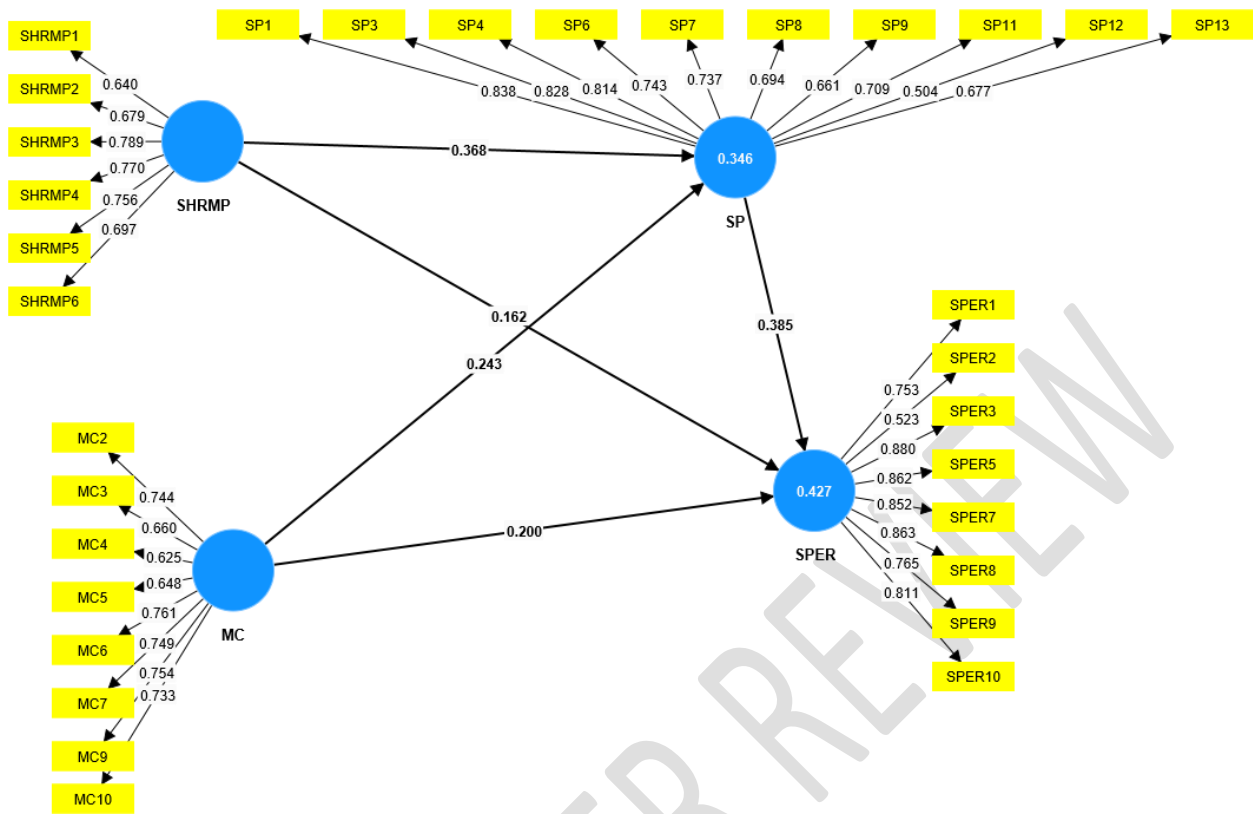


Figure 1. Internal Consistency

Examining the measuring model includes reliability or internal consistency, convergent validity, and discriminant validity (DV). Reliability or internal consistency assesses the extent to which the items accurately measure a certain latent dimension (Ramayah et al., 2018). The factor loading value exceeds 0.05. All numbers below 0.05 have been eliminated. Alpha and Composite Reliability (CR) should exceed 0.7 to be deemed satisfactory for each assessed construct. The findings indicated that the CR values for all constructions exceeded 0.70. Convergent validity assesses the extent to which a measure correlates favorably with other assessments of the same variables (Hair Jr, et al, 2017). The assessment of CV requires an analysis of the factor loading values of the items and the average variance extracted (AVE) shown in Table 1. Hair Jr et al. (2017) proposed that outside loadings may be preserved if their value exceeds 0.50. So, managerial commitment (MC) ($\alpha=0.859$, $CR=0.891$, $AVE=0.506$), sustainable HRM practices ($\alpha=0.817$, $CR=0.868$, $AVE=0.524$), sustainability practices (SP) ($\alpha=0.897$, $CR=0.917$, $AVE=0.528$) and sustainable performance (SPER) ($\alpha=0.914$, $CR=0.931$, $AVE=0.634$).

Table 1.
Internal Consistency

	α	CR	AVE
MC	0.859	0.891	0.506
SHRMP	0.817	0.868	0.524
SP	0.897	0.917	0.528
SPER	0.914	0.931	0.634

Discriminant validity (DV) refers to the extent to which the constructs used in the model are distinct from one another (Hair et al., 2017). The cross-loadings criteria indicate that the indicators of a construct should not have larger loadings on competing constructs. This holds true in our instance (Table 2). According to the Fornell and Larcker criteria, the square root of the Average Variance Extracted (AVE) must exceed the values of its bivariate correlations with all other components.

Table 2.
Discriminant Validity

	MC	SHRMP	SP	SPER
MC2	0.744	0.668	0.381	0.392
MC3	0.66	0.488	0.437	0.388
MC4	0.625	0.465	0.397	0.344
MC5	0.648	0.492	0.405	0.32
MC6	0.761	0.719	0.435	0.435
MC7	0.749	0.674	0.386	0.409
MC9	0.754	0.644	0.339	0.414
MC10	0.733	0.621	0.361	0.415
SHRMP1	0.505	0.64	0.372	0.347
SHRMP2	0.53	0.679	0.504	0.412
SHRMP3	0.711	0.789	0.417	0.425
SHRMP4	0.689	0.77	0.379	0.429
SHRMP5	0.639	0.756	0.439	0.409
SHRMP6	0.577	0.697	0.355	0.362
SP1	0.440	0.443	0.838	0.505
SP3	0.459	0.46	0.828	0.442
SP4	0.401	0.452	0.814	0.459
SP6	0.331	0.346	0.743	0.381
SP7	0.483	0.476	0.737	0.447
SP8	0.277	0.334	0.694	0.407
SP9	0.344	0.382	0.661	0.436
SP11	0.325	0.329	0.709	0.423
SP12	0.446	0.411	0.504	0.325

SP13	0.460	0.48	0.677	0.418
SPER1	0.410	0.408	0.515	0.753
SPER2	0.261	0.264	0.280	0.523
SPER3	0.491	0.474	0.524	0.88
SPER5	0.466	0.467	0.539	0.862
SPER7	0.485	0.47	0.491	0.852
SPER8	0.452	0.476	0.503	0.863
SPER9	0.437	0.427	0.371	0.765
SPER10	0.462	0.487	0.467	0.811

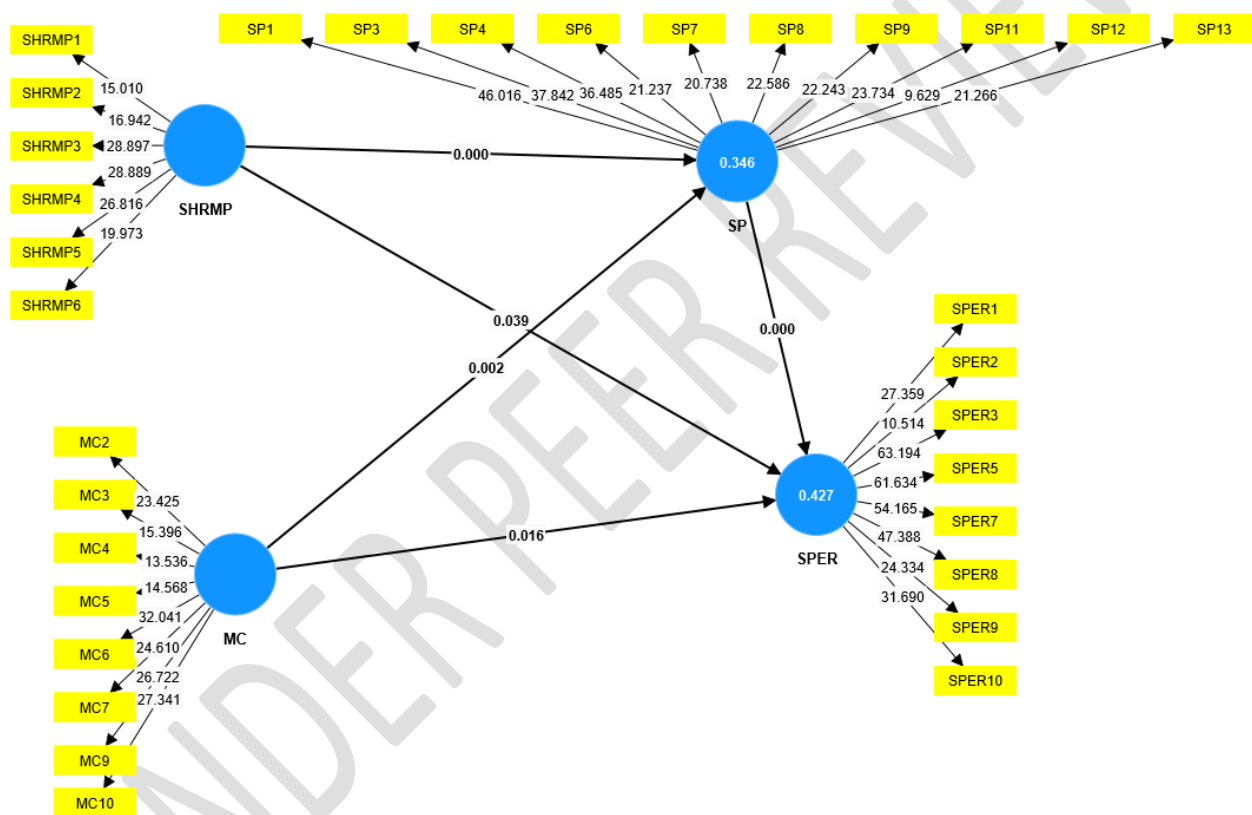


Figure 2. Path Coefficient

The structural model quantifies the causal relationship among the constructs. Hair et al. (2017) advocated for the use of the bootstrapping approach with 5000 resamples to evaluate the relevance of the proposed model. So, Table 3 shows that MC → SP ($\beta=0.243$, $t=2.935 > 1.64$, $P=0.002 < 0.05$) is significant, MC → SPER ($\beta=0.200$, $t=2.133 > 1.64$, $P=0.016 < 0.05$) is significant. SHRMP → SPER ($\beta=0.162$, $t=1.762 > 1.64$, $P=0.039 < 0.05$) is significant, SP → SPER ($\beta=0.385$, $t=5.949 > 1.64$, $P=0.000 < 0.05$) is significant.

The mediating results show in Table 3, MC->SP->SPER ($\beta=0.094$, $t=2.757>1.64$, $P=0.003<0.05$) is significant and SHRMP->SP->SPER ($\beta=0.142$, $t=3.443>1.64$, $P=0.000<0.05$) is significant.

Table 3.
Path Coefficients

Associations	β	T values	P values
MC -> SP	0.243	2.935	0.002
MC -> SPER	0.200	2.133	0.016
SHRMP -> SPER	0.162	1.762	0.039
SP -> SPER	0.385	5.949	0.000
MC -> SP -> SPER	0.094	2.757	0.003
SHRMP -> SP -> SPER	0.142	3.443	0

Theoretical Implications

This study addresses the literature's need for more research bridging SHRM and the sustainability of organizations (Ren et al., 2023). Our results have substantial theoretical implications for Strategic Human Resource Management and the wider organizational sustainability literature. Initially, acknowledging the restricted applicability of theories in study of sustainability (Connelly et al., 2011), we enhance the literature by using a fresh theoretical framework—signaling theory. Studies often neglect the complex dimensions of signaling theory, focusing excessively on the signaler, signal, or receiver (Guest et al., 2021). We enhance the theoretical foundations of signaling theory, highlighting the essential function of managers as executors of organizational behaviors. We emphasize the significance of employees and colleagues as interpretation of these signals. Our research offers an in-depth comprehension of signaling theory within the framework of organizational sustainability.

Secondly, our results underscore the significance of SHRMP and leadership as two critical precursors to sustainable practices. SHRMP exemplifies the management of personnel inside the company and aligns with the overarching organizational strategy (Stahl et al., 2020). Our research indicates that when employees feel they are treated positively, they respond by enhancing their engagement in sustainability practices (López-Cabrales & Valle-Cabrera, 2020) and significantly contribute to the acquisition and development of both individual and company competencies (Aust,

Matthews & Muller-Camen, 2020). Correspondingly, the endorsement of leadership as a precursor is consistent with other studies suggesting that managers may effectively facilitate the adoption of practices (Gilbert, De Winne & Sels, 2015). These results underscore the need for leaders to modify the way they lead to include sustainability practices into the business strategy (Ren et al., 2023). Our research corroborates the perspective that leadership plays an essential role in the manufacturing sector for earning employee respect and improving employee-organization alignment (Martdianty, Coetzer & Susomrith, 2020).

Third, our results elucidate a novel mediating process, sustainability practices, enhancing the comprehension of the link between SHRMP and leadership about sustainability performance. This process elucidates the connection between HRM and performance, particularly regarding sustainability (Stahl et al., 2020). This work is the first to explicitly propose and scientifically assess the possible mediators of this association, despite earlier data tacitly indicating their need. Our research emphasizes the mediating function of sustainability practices, based on studies indicating that a SHRM system may enhance sustainability performance (López-Cabrales & Valle-Cabrera, 2020).

Organizations must abandon programs centered on short-term, myopic perspectives, since they conflict with long-term sustainability objectives (Miska, Szocs & Schiffinger, 2018). The results indicate that long-term orientation is more prevalent in firms within Eastern cultures compared to those in Western cultures, since the former often have more expansive long-term goals and are therefore less influenced by short-term occurrences like daily prices for stocks (Bansal, Kim & Wood, 2018).

Managerial Implications

The findings from this study offer insightful recommendations for managers. Given that SHRMP and managerial competency impact a firm's sustainability practices, companies could incorporate sustainability-related issues into their training and development programs. In this context, managers in particular should receive specialized training to develop competencies in leading sustainability-oriented initiatives and innovation. This can include courses on sustainable business strategy, stakeholder engagement and the implementation of eco-friendly initiatives. By enhancing their ability to lead and advocate for sustainability, managers can better integrate these principles into business operations and decision-making processes.

In terms of specific SHRMP, sustainability training should be tailored to manufacturing industry, ensuring they are experienced effectively by organizational members. Integrating sustainability into performance appraisal systems is another recommended approach. Human resource managers can include sustainability related objectives and metrics in performance evaluations, ensuring that employees' contributions to sustainability are recognized and rewarded. Recognizing and rewarding sustainable practices among employees is also vital. Implementing a rewards system that celebrates employees who contribute to the company's sustainability initiatives can significantly boost engagement and motivation. This could include formal recognition programs such as 'Sustainability Champion' awards, bonuses for achieving sustainability targets or public acknowledgement in company communications.

In addition, the importance of co-worker sustainability support suggests promoting collaborative efforts towards sustainability. One possible way forward is creating cross-functional teams to focus on sustainability projects, or facilitating knowledge-sharing platforms where employees can exchange ideas on sustainability practices. Creating cross-functional teams to work on sustainability initiatives will ensure innovative and creative solutions stemming from diverse perspectives. Moreover, platforms such as regular brainstorming sessions, suggestion boxes, or digital collaboration tools for employees to share ideas and innovations related to sustainability will help develop a sense of teamwork and collective responsibility towards sustainability.

Given the evidence on signaling effects revealed by the study, we also recommend that organizations ensure clear and consistent communication emphasizing the company's commitment to sustainability, making it integral to the company's strategic planning and daily operations in meetings and company updates and through internal communication channels. Further, organizations could collaborate with other stakeholders and participate in capacity-building initiatives to enhance their overall sustainability performance. This could benefit manufacturing industry, creating networking opportunities that enable them to learn from other organizations. To demonstrate a long-term commitment to sustainability and ensure credibility, organizations could obtain external certifications, enhancing their brand image among stakeholders, including suppliers, distributors and customers.

Limitations and Future Research

This study's results broaden the comparatively unexamined domains of strategic human resource management and organizational sustainability. Nonetheless, some limits persist. The research is cross-sectional, hence constraining causal inferences across variables, a typical constraint seen in previous cross-sectional studies within the sustainability research in management (Chaudhuri et al., 2024) and recent publications in this journal (Queiroz et al., 2024). Consequently, we assert that procedural treatments and statistical testing validate and confirm the dependability of the constructs and the model of structure. Future research may use an experimental longitudinal design to address this problem. For example, gathering independent and outcome variables from several sources or from a single source.

Secondly, we concentrated on three major organizational stakeholders: employees, colleagues, and direct supervisors. Subsequent research may investigate external stakeholders, including legislators, consumers, and advocacy organizations, who might influence sustainable performance (Diaz-Carrion, et al., 2021). Third, we evaluated a comprehensive framework of Strategic Human Resource Management and sustainable performance, using managerial competence. Subsequent researchers may investigate other constructs, such as employee involvement, motivation, and psychological agreements (Dixon-Fowler et al., 2020).

Fourth, we investigated the moderating influence of workers' long-term orientation on sustainable behaviors and sustainability performance. Subsequent studies may examine cultural values, including individualism and collectivism, and their influence on an organization's strategic human resource management and corporate practices. Fifth, while this research offers substantial insights into the Iraqi manufacturing sector concerning HRM and sustainability, the conclusions are limited in their generalizability. Future research might assess the relevance of this study's results in other developing and mature market situations, as well as among enterprises of varying sizes, to address this issue. Future research should investigate the three-way relationship among SHRM, management competence, and colleague sustainability assistance for sustainability activities, expanding upon the findings of this study. Furthermore, examining the triadic interplay between sustainability practices and employee engagement in sustainability may deepen our comprehension of how these elements jointly impact employee sustainability performance. This profound understanding may result in more focused and efficient tactics for advancing sustainability inside enterprises.

Conclusion

In light of the triple-bottom-line issues and the volatile corporate supply chain environment, firms are adopting sustainability policies. Nevertheless, the industrial business has limited resources. In this context, HRM academics have advocated for study on the influence of SHRM on the performance of sustainability. We analyzed the influence of SHRMP and management competence on sustainability practices, which subsequently affected sustainability performance. The correlation between sustainability practices and sustainability performance was augmented by employee engagement in sustainability and a long-term perspective. Our results underscore the need of a comprehensive strategy including management, employees, and colleagues to enhance sustainability, ultimately enhancing sustainability performance. This work enhances understanding of SHRM and organizational sustainability, directing further studies in this domain.

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