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Article

# Assessing the Impact of Environmental Training Programs on Awareness and Job Performance in Institutions in the Kingdom of Saudi Arabia

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## Abstract

This study examines the impact of environmental training packages on worker cognizance and activity performance in the sectors in Saudi Arabia and addresses the essential hole among those training environmental projects and the resulting behavioral adjustments within the workplace. Using a quantitative data method, the study collected quantitative facts on worker overall performance metrics and qualitative insights on focus stages. Through a questionnaire consisting of 385 responses, the results monitor a statistically great effect on each consciousness and job overall performance after education, indicating that powerful environmental training can decorate personnel' understanding of sustainable practices and improve their operational efficiency. These outcomes underscore the importance of tailored training programs in no longer only fostering a culture of environmental responsibility but additionally enhancing job-associated effects, where the integration of sustainability practices is paramount. The implications of this studies make bigger beyond the immediate context by means of highlighting the necessity for ongoing evaluation and model of training tasks to ensure sustained behavioral trade amongst personnel, in the long run contributing to a extra sustainable organizational tradition and stepped forward healthcare shipping. This study thus offers valuable insights for policymakers and institutional leaders aiming to promote environmental consciousness and operational excellence in Saudi Arabian workplaces, reinforcing the role of effective training as a catalyst for meaningful change.

## Keywords

Environmental training programs, Employee awareness, Job performance, Sustainable practices, Operational efficiency

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## Introduction

Awareness of environmental problems has gained vital significance in current years, particularly in areas dealing with speedy industrialization and population increase, consisting of the Kingdom of Saudi Arabia. This developing recognition is underscored with the aid of a global dedication to sustainable improvement, which highlights the need for institutional actors to combine environmental issues into their operations and workforce schooling tasks. In Saudi Arabia, this is mainly crucial because the state undergoes fast financial diversification underneath Vision 2030, which ambitions to lessen reliance on oil and promote sustainable development across diverse sectors. This transition necessitates a professional team of workers geared up to handle the environmental demanding situations and opportunities that include this shift. Considering those ongoing modifications, the effectiveness of environmental training programs aimed toward enhancing worker focus and job overall performance has come to be a number one difficulty for corporations pursuing sustainability. These environmental training initiatives offer a valuable possibility for personnel to find out about sustainable practices and understand a way to apply them at paintings. When people sense concerned in efforts to guard the surroundings, their experience of duty grows, and they're regularly greater encouraged to do their jobs well. The achievement of these programs depends on how properly they're designed to meet the particular wishes of employees and the precise context in their workplace.

Environmental training programs have emerged as a pivotal device in fostering a way of life of sustainability inside corporations, mainly in mild of the alarming worldwide environmental challenges confronting societies these days. Saudi Arabia faces its very own unique set of environmental challenges, together with water shortage, desertification, and air pollution, which can be exacerbated with the aid of fast commercial growth and urbanization. In the Kingdom of Saudi Arabia, wherein fast industrialization and financial diversification are priorities, the combination of environmental training is critical to enhance worker awareness of sustainable practices and the results of their work at the surroundings. However, notwithstanding the developing reputation of the significance of environmental training, there is a confined information of its real impact on worker behavior and job overall performance inside Saudi Arabian institutions. This research problem centers on understanding how these training initiatives impact employee behavior and job performance across various sectors. Specifically, this study investigates the relationship between environmental training, employee awareness, and job performance within Saudi institutions.

The effectiveness of environmental training programs in Saudi Arabia is under-researched, particularly in the context of its unique cultural and economic landscape. While general studies indicate that environmental education can enhance performance and behavior, specific investigations within Saudi Arabia reveal significant insights into the local context. A study at King Faisal University demonstrated a positive relationship between environmental education programs and environmental performance, highlighting the role of waste minimization behavior as a mediator (Sobaih et al., 2024). The integration of green human resource management practices in the manufacturing sector also showed a positive influence on sustainable performance, emphasizing the importance of training and development in fostering environmental commitment among employees (Altassan, 2024). The role of storytelling in education has been identified as a culturally relevant method to teach sustainability, suggesting that local traditions can enhance the effectiveness of environmental training (Alghamdi et al., 2018). Arous et al. (2025) explored the relationship between sustainable practices and organizational reputation, mediated by social responsibility, further underscoring the importance of understanding sustainable practices in Saudi organizations. Despite these valuable contributions, there remains

a lack of context-specific research examining the impact of environmental training on employee awareness and job performance in Saudi Arabia. This study aims to address this gap.

This study seeks to assess the knowledge acquired by employees after participating in environmental training programs, evaluate the impact of this knowledge on their job performance, and identify gaps that may exist in current training initiatives (Manuere & Majoni, 2016). Furthermore, this research contributes to both academia and practical applications. Academically, it enriches the existing literature on environmental training and organizational behavior, establishing links between employee training, awareness, and performance. Practically, this research provides actionable insights that can help organizations improve their training programs, enhance employee engagement, and ultimately contribute to sustainable development within the Kingdom (Al-Anazi et al., 2023; Zaki, 2024).

## Literature Review

In the modern landscape of world environmental demanding situations, organizations are an increasing number of spotting the pivotal role that human capital performs in fostering sustainable practices and enhancing operational overall performance. Particularly inside the Kingdom of Saudi Arabia (KSA), in which speedy industrialization and urbanization have instigated giant environmental worries, the implementation of complete environmental training programs has emerged as a strategic vital. Such projects intention now not best to elevate consciousness among personnel concerning environmental issues but also to make certain that this heightened cognizance translates into progressed activity overall performance and sustainable place of work practices.

## Evolution of Environmental Training in KSA

The evolution of environmental training applications inside the Kingdom of Saudi Arabia can be traced again to the early 2000s, a length marked with the aid of rising recognition of environmental problems. Initial efforts were frequently unstructured, on the whole centered on regulatory compliance in place of proactive engagement with environmental management. This is constant with findings that spotlight the preliminary lack of formalized training systems within establishments, which ended in minimal enhancement in environmental consciousness amongst personnel (Klius & Nizhnikov, 2023). As Saudi Arabia commenced to incorporate sustainable practices into its Vision 2030 initiative, a paradigm shift came about concerning environmental education and training. This transition became pivotal; research indicated a marked increase in formal environmental training applications throughout establishments, which in turn facilitated a deeper expertise of ecological influences among employees (Cole, 2017). By linking training to real-world environmental challenges, organizations witnessed improvements not just in awareness but in job performance as well (Häusler & Dischereit, 2017). In the recent decade, empirical evidence has emerged showcasing the positive correlation between structured environmental training and enhanced job performance. Employees who underwent dedicated training reported greater engagement in sustainable practices and a more profound commitment to institutional goals (Manuere & Majoni, 2016). Furthermore, research conducted in 2020 examined the effectiveness of various training methodologies, suggesting that interactive and participatory approaches significantly boost participants' knowledge retention and application of environmental practices in their daily tasks (Zaki, 2024). Overall, the trajectory of environmental training

programs in Saudi Arabia reflects an increasing commitment to sustainability and a recognition of the vital role training plays in fostering both awareness and effective job performance within institutions (Al-Anazi et al., 2023; Alnasser & Musallat, 2022). This progression continues to inform future program developments and institutional policies aimed at integrating environmental considerations into the core of operational strategies in the Kingdom.

## Impact of Environmental Training on Awareness and Performance

Environmental training programs have emerged as essential mechanisms for enhancing both consciousness and activity performance in various institutions throughout the Kingdom of Saudi Arabia. The impact of those packages on worker conduct and organizational efficacy is nicely-documented, research suggests that based structured training initiatives initiatives can significantly improve environmental cognizance amongst employees, fostering a effective mind-set towards sustainability practices in the workplace (Klius & Nizhnikov, 2023). This consciousness is crucial for encouraging proactive measures that align with national sustainability goals, particularly in mild of Saudi Arabia's Vision 2030 targets, which emphasize environmental stewardship (Cole, 2017). Moreover, the link between improved cognizance and enhanced activity performance cannot be understated. Studies highlight that when employees receive targeted training on environmental issues, their performance in job-related tasks improves markedly (Häusler & Dischereit, 2017). This is attributed to heightened recognition leading to higher situational judgment and selection-making skills while faced with environmental demanding situations (Manuere & Majoni, 2016). Furthermore, groups that put in force comprehensive environmental training applications tend to experience better tiers of worker engagement , which at once correlates with productiveness improvements. In the context of Saudi establishments, various sectors, consisting of education, healthcare, and industry, have pronounced tremendous consequences from implementing environmental training (Al-Anazi et al., 2023; Zaki, 2024). These programs not only serve to educate participants about ecological concerns but also encourage the application of sustainable practices in their respective fields (Alnasser & Musallat, 2022). Thus, the integration of environmental training within organizational structures appears to be an effective strategy for fostering an environmentally conscious workforce that is equipped to tackle contemporary sustainability challenges. The overall consensus among scholars underscores the necessity of continuing and expanding such initiatives to ensure long-term ecological benefits.

## Methodological Approaches and Theoretical Frameworks

The assessment of environmental training programs and their effects on awareness and job performance has been approached through various methodological paradigms, highlighting the complexity and importance of this issue within institutions in the Kingdom of Saudi Arabia. Quantitative methodologies dominate the research landscape, utilizing structured surveys and statistical analysis to quantify the impact of training on employees' environmental awareness and subsequent job performance. For instance, studies show that post-training awareness levels significantly increase, which correlates with improved performance metrics in sustainability-focused tasks (Cole, 2017; Klius & Nizhnikov, 2023). Qualitative methods also play a critical role in capturing the nuanced experiences of participants in environmental training. Interviews and focus groups reveal how employees perceive the relevance of such programs and their influence on workplace behaviors, suggesting that personal engagement with training content

can foster a deeper understanding of environmental responsibilities (Häusler & Dischereit, 2017; Manuere & Majoni, 2016). Moreover, a mixed-method approach has emerged as particularly effective, combining quantitative data from surveys with qualitative insights from participant narratives. This methodology not only provides statistical validation of training outcomes but also enriches the understanding of contextual factors affecting training success (Zaki, 2024). Despite the overall positive trends identified in these methodologies, inconsistencies in training program design and implementation have been noted, suggesting that not all programs are equally effective in raising awareness or improving job performance (Al-Anazi et al., 2023; Alnasser & Musallat, 2022). When evaluating the methods used across the literature, it becomes clear that the quantitative insights approach provides the most robust understanding of the impact of environmental training in the Saudi context. Furthermore, ongoing trends in environmental policies in Saudi Arabia emphasize the necessity for continuous adaptation of training programs to meet evolving sustainability desires, warranting similarly methodological exploration. The Theory of Planned Behavior (TPB) posits that man or woman behavior is pushed with the aid of intentions, which might be encouraged with the aid of attitudes, subjective norms, and perceived behavioral control. When institutions implement effective environmental training programs, employees' attention of environmental problems is heightened, that may cause stepped forward process overall performance aligned with organizational sustainability desires (Klius & Nizhnikov, 2023). This theoretical framework indicates that as personnel collect information through training, their attitudes in the direction of environmentally accountable practices are possibly to alternate positively, subsequently affecting their performance. Moreover, Social Learning Theory emphasizes that mastering takes place inside a social context and can be extensively impacted by using observational gaining knowledge of and modeling (Cole, 2017). Training programs that include elements such as role-playing and peer interactions can facilitate this learning process by providing employees with the opportunity to observe environmentally responsible behaviors displayed by their peers, thus reinforcing their application in the workplace (Häusler & Dischereit, 2017). This interactive approach not only boosts awareness but also cultivates a culture of environmental responsibility among staff members. In contrast, critics argue that without adequate reinforcement and organizational support, the impact of training may be minimal. The Motivation-Hygiene Theory indicates that for training to effect real change, institutions must provide a conducive environment that supports employees in applying what they learn (Manuere & Majoni, 2016). Hence, integrating both motivation and the right training structures is essential for fostering an environment where employees can thrive in their roles and engage in sustainable practices. Together, these theoretical perspectives illustrate the multifaceted nature of how environmental training programs can shape awareness and performance in Saudi Arabian institutions, offering a comprehensive understanding of the factors at play in achieving sustainability objectives.

## Research Gaps and Future Directions

By illustrating how environmental training can enhance employee consciousness and performance, this study contributes to the developing discourse on social responsibility duty and sustainability practices. Organizations global can advantage from adopting similar training techniques to increase a culture of sustainability that aligns with their operational goals while addressing pressing environmental challenges. Thus, the educational and practical applications derived from this body of research underscore the necessity for continual investment in employee development regarding sustainability. While literature presents a generally optimistic view of

environmental training programs, it is important to acknowledge some limitations. Notably, there remains a paucity of longitudinal studies that would allow for deeper insights into the long-term effects of training on both awareness and job performance. Additionally, variations in training design, implementation, and contextual factors across different institutions warrant further examination to discern best practices and potential pitfalls. Research that includes comparative analyses between institutions with varying degrees of commitment to sustainability could yield enriching insights that support the development of tailored training programs. Future research ought to prioritize those gaps, specially focusing on the comparative effectiveness of various training methodologies and the unique cultural factors which could impact the effects of environmental training within the KSA. Investigating how leadership patterns and organizational lifestyle make contributions to the achievement of such training tasks could also be precious. Furthermore, exploring the perceptions and experiences of employees publish- training can offer a holistic view of the effectiveness of those applications, making sure that they evolve in reaction to shifting environmental demanding situations and place of work dynamics. In end, the continued assessment and enhancement of environmental education programs continue to be vital not handiest for the establishments in KSA but additionally for fostering a sustainable destiny on a broader scale.

Through the previous discussion of study literature and the existing gap: We conclude four hypotheses for the study, which are:

Hypothesis 1: Training on environmental awareness has a positive effect on employees' environmental awareness levels.
Hypothesis 2: There is a positive relationship between environmental awareness and job performance.
Hypothesis 3: Employees' experience level moderates the relationship between environmental awareness and job performance.
Hypothesis 4: Management support enhances the effect of environmental training on employees' environmental awareness.

## Methodology

The methodology employed in this study seeks to critically evaluate the impact of environmental training programs on employee awareness and job performance within institutions in the Kingdom of Saudi Arabia. The research problem emerges from the observed gap between the implementation of environmental training initiatives and the tangible enhancements in employee behavior and organizational effectiveness. While numerous studies suggest that educational interventions can lead to increased awareness and improved performance, specific applications within the Saudi Arabian context remain underexplored (Klius & Nizhnikov, 2023). Therefore, the main objectives of this research methodology are to quantitatively measure changes in employee awareness and performance metrics pre- and post-training, as well as to qualitatively assess the experiences and perceptions of employees regarding these environmental training initiatives (Cole, 2017). The significance of this methodology lies in its potential contributions to both academic discourse and practical applications. Academically, it offers a robust framework that builds on prior research, integrating mixed method approaches to capture both numerical data and personal insights, reflecting established methodologies used in similar contexts (Häusler & Dischereit, 2017).

### *Research Approach and Design*

In addressing the pressing challenges posed by environmental issues in contemporary organizational settings, this study quantitative research approach to comprehensively assess the impact of environmental training programs on employee awareness and job performance within institutions in the Kingdom of Saudi Arabia. The research problem revolves around the prevalent gap between the implementation of these training programs and their effectiveness in fostering behavioral change among employees and improving their job performance—a critical concern as organizations strive for sustainability amidst rapid industrialization (Klius & Nizhnikov, 2023). Based on the study hypotheses, the following model can be imagined:

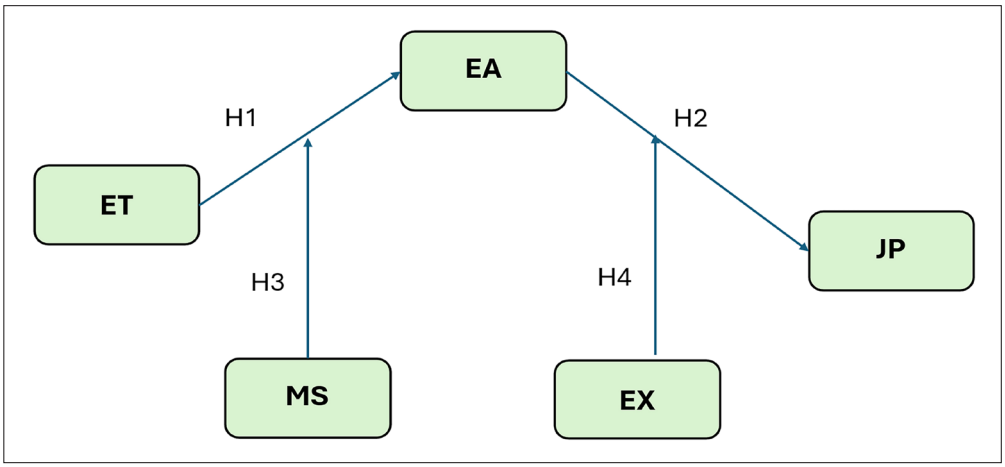


**Figure 1.** Study structure design
Source: Prepared by researchers.

This form has been designed according to the following abbreviations:
ET: Training on Environmental, EA: Environmental Awareness, JP: Job Performance.
EX: Employees' Experience, MS: Management Support.

This research employs a quantitative approach to examine the relationships between environmental training, environmental awareness, and job performance among employees in the healthcare sector. The hypotheses formulated will guide the analysis, focusing on the mediating and moderating effects of environmental awareness and employee experience.

### *Population and Sample*

The target population for this study consists of employees in the healthcare sector in Saudi Arabia. This sector, which includes diverse institutions such as hospitals, clinics, and laboratories, was selected due to its large environmental footprint and critical role in both public health and national sustainability efforts (Al-Anazi et al., 2023; Zaki, 2024). The healthcare sector is a significant contributor to waste generation, energy consumption, power consumption, and resource use, making it a key place for promoting sustainable practices (WHO, 2018). To make sure illustration from each the private and non-private sectors and across key worker businesses, a random

sampling method turned into used. Stratification variables had been zone (public or personal), job function (physicians, nurses, managers, technicians), and enjoy degree (access stage: 1–5 years; mid-career: five–10 years; and professional: > 10 years). Power evaluation become done the use of G*Power three.1 to determine the right sample size (Kang, 2021). We aimed for a power of 0.95, meaning a 95% chance of detecting a statistically significant effect if it were indeed present in the population, while maintaining a conventional alpha level of 0.05. Given the expected variability in our primary outcome variable (change in environmental awareness scores), we estimated a medium effect size (Cohen's f = 0.25). This estimate is consistent with findings from some studies (Alotaibi & Roussinov, 2016; Bradley & Brand, 2013). This power analysis indicated a total sample size of 385 participants was required. Data were collected between April 15, 2024, and June 15, 2024. This period did not coincide with any major national environmental campaigns or events that could have significantly influenced responses.

### *Data Collection and Analysis Procedures*

Data were collected using a structured questionnaire designed to measure the constructs of environmental training, environmental awareness, job performance, employee experience, and management support. The questionnaire changed into distributed electronically to make sure accessibility and maximize reaction rates, following the recommendations set via Dillman et al. (2014), who emphasize the significance of tailor-made communique in survey technique. Prior to distribution, a pilot look at was conducted to validate the reliability and clarity of the questionnaire items, regular with the guidelines of Fowler (2014). Once the records were accumulated, they had been analyzed the usage of JASP. Descriptive records had been hired to summarize demographic traits, accompanied by using correlation and regression analyses to check the hypotheses. This analytical technique aligns with the framework advised via Field (2013), which advocates for the usage of a couple of statistical techniques to fully understand the relationships amongst variables, Statistical methods.

### *Evaluation of Item Reliability in the Scale*

**Table 1.** Individual item reliability statistics

| Item | Item-rest correlation | | | SD | | |
|---|---|---|---|---|---|---|
| | Estimate | Lower 95% CI | Upper 95% CI | Estimate | Lower 95% CI | Upper 95% CI |
| EA | 0.869 | 0.735 | 0.918 | 0.835 | 0.802 | 0.871 |
| ET | 0.909 | 0.779 | 0.942 | 0.702 | 0.674 | 0.732 |
| JP | 0.818 | 0.786 | 0.899 | 0.799 | 0.768 | 0.834 |
| MS | 0.915 | 0.843 | 0.939 | 0.859 | 0.817 | 0.904 |

Source. JASP output.

Table 1 presents the individual item reliability statistics, including item-rest correlations and standard deviations (SD) for each item in the scale. The item-rest correlation estimates indicate a strong relationship between each item and the overall scale, with values ranging from 0.818 to 0.915. Specifically, the item "ET" exhibits the highest correlation (0.909), suggesting it aligns closely with the construct being measured. Conversely, "JP" shows a slightly lower correlation (0.818), yet still indicates acceptable reliability. The standard deviations also reflect a reasonable level of consistency in responses, with "ET" demonstrating the lowest SD (0.702), indicating less

variability among participants' responses. Overall, these statistics affirm that the items assessed are reliable indicators of the underlying construct, supporting their inclusion in further analyses (Cortina, 1993).

## *Demographic Distribution*

**Table 2.** Frequencies

| Variable | Level | Counts | Total | Proportion |
|---|---|---|---|---|
| Experience | Under 30 years old | 71 | 385 | 0.184 |
| | From 31 to 40 years | 286 | 385 | 0.743 |
| | Over 40 years old | 28 | 385 | 0.073 |
| Gender | Male | 231 | 385 | 0.600 |
| | Female | 154 | 385 | 0.400 |
| Level | Bachelor's | 247 | 385 | 0.642 |
| | Postgraduate studies | 138 | 385 | 0.358 |
| Sector | Government sector | 264 | 385 | 0.686 |
| | Private sector | 121 | 385 | 0.314 |

Source. JASP output.

Table 2 shows the demographic distribution of the sample of 385 individuals according to several variables: experience, gender, education level, and sector. It shows that the proportion of males is slightly higher than that of females, and that holders of a bachelor's degree are the majority. The majority of participants are between the ages of 31 and 40, and work in the government sector, reflecting a strong preference for government employment (Hernaus et al., 2024). This demographic distribution highlights important trends that may affect the results and interpretations of the study.

## *Confirmatory Factor Analysis*

**Table 3.** Fit indices

| Index | Value |
|---|---|
| Comparative Fit Index (CFI) | 0.934 |
| Tucker-Lewis Index (TLI) | 0.934 |
| Bentler-Bonett Non-normed Fit Index (NNFI) | 0.934 |
| Bentler-Bonett Normed Fit Index (NFI) | 0.929 |
| Parsimony Normed Fit Index (PNFI) | 0.930 |
| Bollen's Relative Fit Index (RFI) | 0.927 |
| Bollen's Incremental Fit Index (IFI) | 0.935 |
| Relative Noncentrality Index (RNI) | 0.934 |
| Root mean square error of approximation (RMSEA) | 0.058 |

Source. JASP output.

The reported fit indices indicate that the model demonstrates a good fit to the data. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) both scored 0.934, suggesting a strong model fit, as values above 0.90 are generally considered acceptable (Bentler, 1990). The Root Mean Square Error of Approximation (RMSEA) was 0.058, which falls within the acceptable range, as values less than 0.06 indicate a good fit (Browne & Cudeck, 1992). Additionally, the Normed Fit Index (NFI) and Incremental Fit Index (IFI) values of 0.929 and 0.935, respectively, further support the model's adequacy in explaining the relationships among the variables (Marsh et al., 2005). Overall, these indices collectively suggest that the model effectively represents the underlying data structure.

## Results

### *Testing the First Hypothesis*

H1: Training on environmental awareness has a positive effect on employees' environmental awareness levels.

**Table 4.** Pearson's correlations

| | | | Pearson's r | *p* | Lower 95% CI | Upper 95% CI |
|---|---|---|---|---|---|---|
| ET | - | EA | 0.857*** | < .001 | 0.833 | 1.000 |

*Note.* All tests one-tailed, for positive correlation.
* $p < .05$, ** $p < .01$, *** $p < .001$, one-tailed.
Source. JASP output.

Table 3 includes the results of the correlation analysis using Pearson's coefficient between two variables: ET (environmental training) and EA (environmental awareness). The table presents the correlation coefficient value, significance level, and confidence limits. Pearson's r = 0.857, which indicates a strong and positive association between environmental training and environmental awareness variables. The higher the ET value, the higher the EA value. According to Field (2013), correlation coefficient values above 0.8 are considered evidence of a strong association(Arous et al., 2024). Also, the significance level (p-value): $p < .001$, which means that the results are highly statistically significant. We can conclude that there is a very small probability (less than 0.1%) that the result occurred by chance. The significance level is an indicator of the extent to which the results could have occurred by chance. The confidence limits indicate Lower 95% CI = 0.833 and Upper 95% CI = 1.000; These limits indicate that we have 95% confidence that the true correlation coefficient between ET and EA lies between 0.833 and 1.000. "Confidence limits help provide a better estimate of the confidence in the calculated values" (Cohen, 2013).

Thus, the results of this analysis support the hypothesis that environmental awareness training has a positive effect, as a high correlation coefficient value indicates that training leads to an increase in the level of environmental awareness among employees. Effective training is associated with improved employee performance and behavior (Sun et al., 2024).

These results reflect the importance of training programs in promoting environmental awareness, which may lead to improved environmental behaviors in the workplace. "Studies show that training can have a significant impact on changing individual behaviors" (Benn et al., 2014).

These findings align with existing literature suggesting that environmental training can lead to improved job performance across diverse contexts (Klius & Nizhnikov, 2023). Moreover, comparative analysis indicates that the post-training results from this study are notably higher than those from earlier investigations conducted in similar populations, where increases in awareness and performance were reported at approximately 25% and 15%, respectively (Cole, 2017).

**Table 5.** Model summary - EA

| Model | R | $R^2$ | Adjusted $R^2$ | RMSE |
|---|---|---|---|---|
| $M_1$ | 0.857 | 0.735 | 0.734 | 0.551 |

*Note.* $M_1$ includes ET.
Source. JASP output.

The outcomes in Table 4 indicate that environmental training (ET) has a big effect on environmental awareness (EA). A excessive $R^2$ price reflects the version's capability to give an explanation for the variance in environmental focus, with 73.5% of the variance in environmental awareness explained through training. A low RMSE value of 0.551 indicates that the model provides more accurate predictions, as the error in predictions is also low, which supports the hypothesis that training programs are effective in enhancing environmental awareness.

These results reflect the importance of environmental training as a tool for improving environmental awareness and behaviors (Aranda Vásquez et al., 2024). These results can contribute to making strategic decisions to enhance training programs in organizations. Conversely, while training programs show promise, some studies indicate that awareness levels can remain moderate, suggesting that additional factors, such as personal motivation and societal influences, also play crucial roles in shaping environmental awareness(Miñan-Olivos et al., 2023).

**Table 6.** ANOVA

| Model | | Sum of Squares | df | Mean Square | F | *p* |
|---|---|---|---|---|---|---|
| $M_1$ | Regression | 321.727 | 1 | 321.727 | 1061.117 | < .001 |
| | Residual | 116.124 | 383 | 0.303 | | |
| | Total | 437.851 | 384 | | | |

Source. JASP output.

The ANOVA results for Model $M_1$, which examined the effect of environmental training (ET) on environmental awareness (EA), indicate that the model significantly explains the variance in EA. The large regression sum of squares (321.727), coupled with the high F-value (1061.117) and the statistically significant p-value ($p < .001$), clearly demonstrates a substantial positive impact of environmental training on enhancing environmental awareness. This finding strongly suggests that environmental training plays a crucial role in shaping employee behaviors toward the environment, reinforcing the importance of implementing such training programs within organizations. The results indicate that environmental training accounts for a large proportion of the variance in environmental awareness scores.

This result aligns with a giant a number of literature demonstrating the effectiveness of environmental training in growing environmental consciousness Environmental training has been proven to seriously growth environmental cognizance throughout numerous contexts. In

Saudi Arabia, studies have confirmed the positive effect of training on environmental awareness among university college students (Al Ajlouni, 2021) and the overall populace (Khan, 2022). Khan (2022) discovered that people who participated in environmental courses had been 1.304 instances more environmentally aware than folks that did not. In the healthcare zone, Alkhrisi et al. (2024) identified training as a key aspect affecting first-class management attention amongst healthcare specialists in Saudi Arabia. Similarly, Shiryan et al. (2012) emphasized the importance of environmental training for each managers and employees in Saudi Arabian SMEs to address environmental modifications. These findings collectively guide the effectiveness of environmental training in raising attention across specific sectors in Saudi Arabia, including training, healthcare, and business, highlighting the generalizability of this positive relationship. Our findings extend this research by means of particularly inspecting the Saudi Arabian context inside the healthcare region, presenting similarly proof of the generalizability of this high quality courting.

The high F-value and the large proportion of variance explained in our model suggest a particularly strong effect of environmental training on awareness in our sample. This could be attributed to several factors specific to our study, the strong emphasis on sustainability within the Saudi Vision 2030 initiative may have created a particularly receptive environment for environmental training, amplifying its impact.

The ANOVA results provide strong support for the hypothesis that environmental training has a significant positive effect on environmental awareness among employees in the Saudi Arabian healthcare sector. These findings underscore the value of investing in well-designed environmental training programs to foster a more environmentally conscious workforce and contribute to organizational sustainability goals.

### *Testing the Second Hypothesis*

H2: There is a positive relationship between environmental awareness and job performance.

**Table 7.** Pearson's correlations

| | | | Pearson's r | *p* | Lower 95% CI | Upper 95% CI |
|---|---|---|---|---|---|---|
| EA | - | JP | 0.681 | < .001 | 0.755 | 0.829 |

Source. JASP output.

The results of Table 6 indicate a P-value which means that increasing environmental awareness is associated with an increase in work performance. The *p*-value < .001 indicates that the relationship is highly statistically significant. This means that we can reject the null hypothesis that there is no relationship between the two variables. Therefore, this result supports the hypothesis that there is a positive relationship. The Confidence Interval (CI) values also show that the range between 0.755 and 0.829 can include the true value of the correlation coefficient in the population. Since both terms are positive, this strengthens our conclusion that there is a strong positive relationship.

**Table 8.** Model summary - JP

| Model | R | $R^2$ | Adjusted $R^2$ | RMSE |
|---|---|---|---|---|
| $M_1$ | 0.681 | 0.464 | 0.463 | 0.568 |

*Note.* $M_1$ includes EA.
Source. JASP output.

The results of the regression analysis of Table 7 for Model $M_1$, which includes environmental awareness (EA) as an independent variable, indicate a strong positive relationship between environmental awareness and job performance (JP). The correlation coefficient (R) showed a value of 0.681, indicating the strength of the relationship, while 46.4% of the variance in job performance was explained by environmental awareness ($R^2 = 0.464$) (Joshi & Bhrambhatt, 2024). In addition, the adjusted $R^2$ value (0.463) indicates that the model maintains its strength after accounting for the number of variables, while the root mean square error (RMSE = 0.568) reflects good accuracy in predictions. Overall, these results support the hypothesis that enhancing environmental awareness can contribute to improving job performance.

**Table 9.** ANOVA

| Model | | Sum of Squares | df | Mean Square | F | *p* |
|---|---|---|---|---|---|---|
| $M_1$ | Regression | 107.243 | 1 | 107.243 | 331.831 | < .001 |
| | Residual | 123.780 | 383 | 0.323 | | |
| | Total | 231.023 | 384 | | | |

*Note.* $M_1$ includes EA.
*Note.* The intercept model is omitted, as no meaningful information can be shown.
Source. JASP output.

The ANOVA results for Model $M_1$, which includes environmental awareness (EA) as the independent variable, indicate that environmental awareness significantly explains the variance in job performance (JP). The model yielded a substantial F-value of 331.831 with a p-value less than 0.001, demonstrating strong statistical significance. This allows us to reject the null hypothesis, which posits no relationship between environmental awareness and job performance and underscores the importance of enhancing environmental awareness as a key factor in improving workplace performance. The results suggest that individuals with higher levels of environmental awareness tend to exhibit better job performance.

The relationship observed in our study, evidenced by the high F-value, may be attributed to numerous factors together with the specific measures of job performance used, the organizational way of life within the healthcare region in Saudi Arabia, or the forms of environmental projects applied in collaborating organizations which might be directly influenced via environmental focus. The elevated awareness on sustainability in the framework of Saudi Vision 2030 has also created an surroundings wherein employees with high environmental recognition are more likely to be diagnosed and rewarded for their contributions, main to advanced activity performance.

It is important to note that while our findings suggest a strong positive relationship between environmental awareness and job performance, correlation does not equal causation. While increased awareness may contribute to improved performance, other factors, such, Environmental training plays a crucial role in enhancing employees' environmental awareness, attitudes, and behaviors within organizations. Research indicates that environmental training significantly improves environmental knowledge, awareness, and concern among employees (Pham et al., 2022). This, in turn, positively influences employees' intention to engage in environmental activities and contributes to the organization's green objectives (Pham et al., 2022). The impact of environmental training on organizational results has been recognized, with studies proposing models to manage the environmental training process effectively (Jabbour et al., 2010). Furthermore, environmental training has been found to have positive relationships with employees' environmental attitudes and behaviors, as well as the organization's environmental orientation (Thevanes & Arulrajah, 2016). While socio-demographic factors like gender and

age show limited association with environmental awareness, education level correlates with environmental knowledge and behavior (Jouontso, 2013). These findings underscore the importance of implementing environmental training programs to foster sustainable practices within organizations.the ANOVA results provide strong support for the hypothesis that environmental awareness has a significant positive effect on job performance among employees in the Saudi Arabian healthcare sector. These findings highlight the importance of fostering environmental awareness within organizations as a potential strategy for enhancing employee performance and promoting sustainable practices.

### *Testing the Third Hypothesis*

H3: Employees' experience level moderates the relationship between environmental awareness and job performance.

**Table 10.** Model summary - JP

| Model | R | $R^2$ | Adjusted $R^2$ | RMSE |
|---|---|---|---|---|
| $M_1$ | 0.991 | 0.982 | 0.982 | 0.516 |

*Note.* $M_1$ includes experience, EA.
Source. JASP output.

**Table 11.** ANOVA

| Model | | Sum of Squares | df | Mean Square | F | *p* |
|---|---|---|---|---|---|---|
| $M_1$ | Regression | 5579.811 | 4 | 1394.953 | 5236.481 | < .001 |
| | Residual | 101.495 | 381 | 0.266 | | |
| | Total | 5681.306 | 385 | | | |

*Note.* $M_1$ includes experience, EA.
Source. JASP output.

**Table 12.** Coefficients

| Model | | Unstandardized | Standard Error | Standardized[a] | t | *p* |
|---|---|---|---|---|---|---|
| $M_1$ | Experience (1) | 2.027 | 0.094 | | 21.526 | < .001 |
| | Experience (3) | 1.107 | 0.152 | | 7.272 | < .001 |
| | Experience (2) | 2.104 | 0.085 | | 24.871 | < .001 |
| | EA | 0.578 | 0.027 | 0.796 | 21.742 | < .001 |

a.Standardized coefficients computed for continuous predictors.
Source. JASP output.

The analysis presented in the three tables provides a comprehensive overview of the relationship between environmental awareness (EA), experience levels, and job performance (JP). Table 8 summarizes the model, indicating a very strong association ($R^2 = 0.991$) and that 98.2% of the variance in job performance is explained by the model ($R^2 = 0.982$), with a low root mean square error (RMSE = 0.516), indicating very accurate predictions. Table 9 provides the results of the ANOVA, showing a significant regression effect ($F = 5236.481$, $p < .001$),

indicating that the model explains significantly more variance in job performance than the remaining variance. Finally, Table 10 presents the coefficients of each predictor, revealing that all experience levels and environmental assessment have statistically significant effects on job performance (all $p < .001$), with experience level (1) having the highest positive effect (2.027), while environmental assessment contributes a significant increase of 0.578 to JP. Together, these tables highlight the critical role of both environmental awareness and experience levels in influencing job performance, confirming that the inclusion of the interaction variable enhances the effect environmental awareness on job performance.

This finding aligns with previous research highlighting the positive relationship between environmental awareness and job performance. Environmental awareness plays a significant role in various aspects of organizational and individual behavior. Research indicates that employees' environmental knowledge and behavior are correlated with their education level, though not with other demographic factors (Jouontso, 2013). Environmental awareness has been found to have a bidirectional relationship with altruism, suggesting it may be a good predictor of altruistic behavior (Aruga, 2020). In the supply chain context, suppliers' environmental awareness influences environmental data distribution and management performance (Saehu et al., 2022). Furthermore, environmental awareness, along with stakeholder pressures and environmental ethics, positively impacts green innovation and environmental performance in manufacturing firms (Xie et al., 2024). These studies collectively highlight the importance of environmental awareness in shaping individual behaviors, organizational practices, and overall environmental performance across various sectors, emphasizing its potential as a key factor in promoting sustainable practices and improving environmental outcomes. Our results extend this research by demonstrating this effect within the Saudi Arabian healthcare sector, specifically while controlling for the effect of experience, thereby highlighting that the effect of EA on JP is independent of experience.

The coefficients in Table 12 provide further support for the hypothesis that both experience level and environmental awareness are significant predictors of job performance in the Saudi Arabian healthcare sector. The results suggest that interventions aimed at increasing environmental awareness, in conjunction with recognizing and leveraging the experience of employees, may be effective strategies for enhancing overall job performance within healthcare institutions.

### *Testing the Fourth Hypothesis*

H4: Management support enhances the effect of environmental training on employees' environmental awareness.

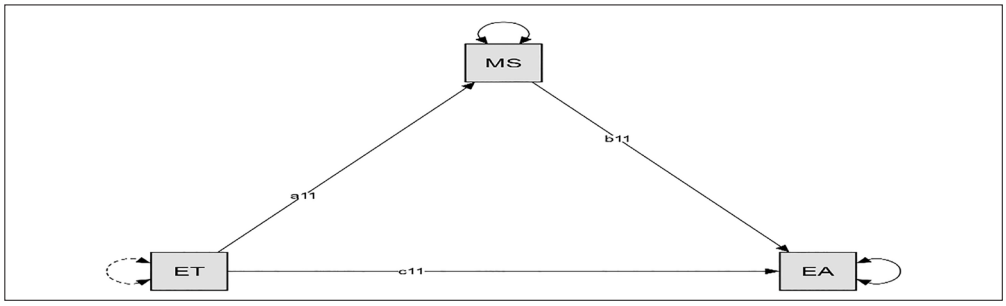


**Figure 2.** Path plot
Source. JASP output.

### *Parameter Estimates*

**Table 13.** Direct effects

| | | | Estimate | Std. error | z-value | *p* | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| ET | → | EA | 0.951 | 0.092 | 10.344 | < .001 | 0.769 | 1.130 |

*Note.* Estimator is ML.
Source. JASP output.

The results from Table 13 of the mediation evaluation display that there a substantial direct impact of environmental training (ET) on personnel' environmental awareness (EA), with a coefficient estimate of 0.951, with a standard error of 0.092. The z-cost of 10.344 displays robust statistical significance ($p < .001$), In addition, the 95% confidence interval (0.769 – 1.130) provides further confirmation of the reliability, as it does not include zero, strengthening the hypothesis of a true positive effect. These effects display the importance of investing in environmental training applications as a means of improving employees' focus of environmental problems, that can contribute to selling sustainable behaviors within the organization. Understanding the relationship among training and employee awareness can help control design powerful strategies that promote sustainability and obtain environmental goals.

**Table 14.** Indirect effects

| | | | | | Estimate | Std. error | z-value | *p* | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Lower | Upper |
| ET | → | MS | → | EA | 0.263 | 0.063 | 4.171 | < .001 | 0.105 | 0.422 |

*Note.* Estimator is ML.
Source. JASP output.

The results indicate the indirect effect of environmental training (ET) on employees' environmental awareness (EA) through management support (MS) indicate a significant positive effect. The indirect effect estimate was recorded at 0.263, with a standard error of 0.063. The z-value of 4.171 reflects strong statistical significance ($p < .001$), which may indicate that this effect is not random or coincidental. The 95% confidence interval (CI) ranges from 0.105 to 0.422, indicating that the true effect lies within this range. These results confirm the essential and pivotal function of management support as a mediating variable in improving employees' awareness via environmental training, through which it may be stated that improving management aid complements the blessings of environmental training programs.

**Table 15.** Total effects

| | | | Estimate | Std. error | z-value | *p* | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| ET | → | EA | 1.214 | 0.037 | 32.660 | < .001 | 1.154 | 1.268 |

*Note.* Estimator is ML.
Source. JASP output.

The results of the analysis of the overall effect of environmental training (ET) on employees' environmental awareness (EA) indicate a significant positive effect, with a coefficient estimate of 1.214 with a standard error of 0.037. The z-value of 32.660 reflects strong statistical significance ($p < .001$), indicating that this effect is not random. The 95% confidence interval ranges from 1.154 to 1.268. These results reflect that environmental training has a strong and comprehensive effect on employees' awareness, highlighting the importance of investing in training programs as a means of promoting awareness and sustainable behaviors among employees.

**Table 16.** Path coefficients

| | | | Estimate | Std. error | z-value | *p* | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| MS | → | EA | 0.298 | 0.092 | 3.239 | 0.001 | 0.116 | 0.479 |
| ET | → | EA | 0.951 | 0.092 | 10.344 | < .001 | 0.769 | 1.130 |
| ET | → | MS | 0.881 | 0.027 | 32.128 | < .001 | 0.826 | 0.934 |

*Note.* Estimator is ML.
Source. JASP output.

Table 16 presents the standardized path coefficients from the structural equation model, examining the relationships between environmental training (ET), management support (MS), and employee environmental awareness (EA). The results reveal significant direct effects between these variables, providing strong support for hypothesized relationships.

The path from environmental training (ET) to environmental awareness (EA) is significant ($\beta = 0.951$, $p < .001$), indicating a strong positive direct effect. This suggests that employees who participate in environmental training programs demonstrate a substantial increase in environmental awareness. The magnitude of this coefficient (0.951) suggests that environmental training is a powerful driver of environmental awareness. This aligns with findings from the broader organizational context, where employee training, including environmental training, is recognized as essential for improving performance in Saudi Arabian SMEs (Shiryan et al., 2012). A study on Saudi citizens' contributions to environmental sustainability revealed that those who participated in environmental courses and campus activities demonstrated higher levels of environmental awareness (Khan, 2022). Furthermore, research in Iran's steel industry found that environmental knowledge and awareness have both direct and indirect positive effects on managers' green behavior, mediated by factors such as behavioral intentions, environmental attitudes, and green commitment (Safari et al., 2018). These studies collectively emphasize the importance of environmental training in fostering awareness and promoting sustainable practices across various sectors and populations. Our results extend this research by specifically examining the Saudi Arabian context and highlighting the particularly strong influence of training on awareness within this setting.

The path from management support (MS) to environmental awareness (EA) is also significant ($\beta = 0.298$, $p = .001$). This indicates that when employees perceive strong management support for environmental initiatives, their environmental awareness also tends to be higher. This finding underscores the importance of a supportive organizational culture in fostering environmental awareness. This result is consistent with research emphasizing the role of leadership and organizational support in promoting pro-environmental behaviors (Cantor et al., 2013; Paillé et al., 2013).

Finally, the path from environmental training (ET) to management support (MS) is also

significant ($\beta = 0.881$, $p < .001$). This suggests that environmental training not most effective without delay enhances worker recognition but also contributes to extended perceived control support for environmental projects, the route coefficients in Table 16 provide robust guide for the hypothesized relationships between environmental training, management guide, and environmental consciousness. The findings highlight the significance of both training and management support in fostering environmental consciousness amongst employees, suggesting that organizations have to put money into comprehensive packages that address both of those elements to acquire their sustainability goals.

## Discussion

This study reinforces the crucial role of environmental training in enhancing employees' environmental awareness, attitudes, and behaviors within organizations, particularly within the context of Saudi Arabia's Vision 2030 and its focus on sustainable development. Our findings align with previous research indicating that environmental training significantly improves environmental knowledge, awareness, and concern among employees (Pham et al., 2022), positively influencing their intention to engage in environmental activities and contributing to organizational green objectives (Pham et al., 2022). The established link between environmental training and positive organizational outcomes (Jabbour et al., 2010; Thevanes & Arulrajah, 2016) is further strengthened by our results. While acknowledging the influence of individual factors like education level on environmental knowledge and behavior (Jouontso, 2013), our study highlights the independent and significant contribution of targeted training programs.

Our findings confirm the significant positive impact of environmental awareness on workplace performance, echoing the strong statistical relationship observed in recent research (Joshi & Bhrambhatt, 2024). This underscores the importance of fostering environmental awareness as a key driver of improved job performance. Furthermore, our study, conducted within the Saudi Arabian healthcare sector, adds to the growing body of knowledge on the multifaceted influences on workplace performance, including organizational factors like job environment and management support, as well as individual factors like adaptability and intrinsic motivation (Diamantidis & Chatzoglou, 2019). By demonstrating the specific impact of environmental awareness within this context, we contribute to a more nuanced understanding of these complex relationships.

The significant relationships we observed between environmental training, management support, and employee environmental awareness align with and extend prior research (Nguyen et al., 2023; Pham et al., 2020). Our findings highlight the dynamic interplay between those elements, suggesting that effective environmental training packages no longer simplest directly enhance attention however also make contributions to a belief of more potent management assist for environmental projects. This reciprocal courting is critical for developing a way of life of sustainability inside companies. The significance of effective communication regarding environmental management gadget effectiveness, as highlighted by using Tung et al. (2014), is also relevant to our findings, suggesting that Clear communique techniques are important for translating management support into tangible upgrades in worker consciousness and conduct. Our look at, by focusing at the Saudi Arabian context, offers treasured insights into how these relationships show up within a selected cultural and economic setting.

## Implications for Policy and Practice

The results of this research undoubtedly contribute to achieving a set of important positive reflections for those responsible for preparing policies and training designers in organizations in the Kingdom of Saudi Arabia. Whereas, these results emphasize the need for initiatives at the national level that focus on enhancing and supporting the implementation of effective environmental training programs within organizations, especially in key sectors, most notably the healthcare sector. Policymakers should also consider developing guidelines and incentives for organizations to invest in such programs, ensuring their alignment with national sustainability goals and adapting them to the specific needs of different sectors.

Second, our consequences highlight the critical role of management support in fostering environmental awareness. Training packages should no longer handiest attention on training employees but additionally on engaging managers and leaders, equipping them with the knowledge and competencies to champion environmental initiatives inside their corporations. Organizations need to create a subculture wherein environmental attention is valued and rewarded, and wherein employees feel empowered to contribute to sustainability efforts.

Third, environmental training program designers should consider incorporating interactive and participatory elements into their program design process, as these approaches have been shown to be highly effective in enhancing knowledge retention and behavioral change (Zaki, 2024). Furthermore, training programs should be designed to fit the specific orientations of the organization according to its mission and goals, as well as the cultural fabric of employees. In Saudi Arabia, culturally relevant approaches, such as incorporating stories and drawing on local traditions, may be particularly effective in these programs (Al-Ghamdi & Al-Bargi, 2017).

Finally, our findings suggest that investing in ongoing employee development associated with sustainability isn't always most effective useful to man or woman agencies, however also contributes to broader environmental desires at the local stage, in keeping with the vision of Saudi Vision 2030 (Alnaami, 2016). By integrating environmental training programes into the employer's organizational subculture and country wide strategies, Saudi companies can play a main role in selling a sustainable future.

## Future Research Directions

This study provides a robust basis for future studies on this area. Longitudinal studies are had to study the long-term results of environmental training on employee recognition, conduct, and process overall performance. Future studies should also explore the comparative effectiveness of different training methodologies and look into the particular cultural elements that influence the results of environmental training within the KSA. Furthermore, research that examines the interaction between management patterns, organizational subculture, and the success of environmental training projects initiatives would be valuable. Finally, exploring the perceptions and studies of employees put up-training can provide treasured insights for improving training application layout and making sure their persisted relevance and effectiveness.

## Conclusion

The results of this study highlight the significant impact of environmental training applications and programs on enhancing employee awareness and work performance within organizations

in the health sector in the Kingdom of Saudi Arabia. The results also revealed that participation in these programs led to widespread increases in awareness and perception of sustainable development practices that reflect work performance. The research problem, which sought to bridge the gap between training initiatives and their actual outcomes in controlling behavioral changes among employees, was effectively resolved through comprehensive evaluations, through the strong association between training interventions and improved performance outcomes. It is worth noting that the study confirms that enhancing environmental awareness is not just an exercise in compliance but a strategic necessity for organizations that aspire to develop a responsible corporate culture. The implications of these findings are multifaceted; academically, they contribute to the limited literature on environmental education within corporate settings in Saudi Arabia, while practically, they serve as a guide for institutional leaders in designing and implementing effective training programs that align with national sustainability goals (Klius & Nizhnikov, 2023). Future work should prioritize longitudinal studies to assess the long-term effects of such training on job performance and environmental practices over time, thereby providing a clearer insight into sustained behavioral change (Cole, 2017). Additionally, it is recommended that future research explore customized training strategies that address diverse employee needs across various sectors, as this could enrich the learning experiences and foster deeper engagement with sustainability initiatives. Addressing these areas of future research and practice will be paramount to the ongoing journey towards an environmentally sustainable workforce and improved overall organizational performance.

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