

Article

The Road to Eco-Excellence: How Does Eco-Friendly Deliberate Practice Foster Eco-Innovation Performance through Creative Self-Efficacy and Perceived Eco-Innovation Importance

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Abstract: In pursuing innovation, eco-friendly deliberate practice will inevitably elevate eco-innovation performance without creative self-efficacy and perceived eco-innovation importance to organizations. This eco-friendly deliberate practice–eco-innovation link is essential because it extends current thinking, treating creative self-efficacy as a causal mechanism and perceived eco-innovation importance as the magnifier of eco-innovation performance. Anchored in social cognitive theory, this study aims to investigate the role of eco-friendly deliberate practice in fueling eco-innovation performance through the mediating role of creative self-efficacy and the moderating role of perceived eco-innovation importance. This study collected 367 responses from the service employees in tourism firms in Pakistan using a time-lagged, i.e., three-wave, research design. The authors analyzed data using a variance-based structural equation model processed in SmartPLS (v 4.0). The findings support the hypothesized relationships, for example, that eco-friendly deliberate practice has a significant positive relationship with eco-innovation performance. In addition, creative self-efficacy significantly mediates the association between eco-friendly deliberate practice and eco-innovation performance. Besides, employees’ perceived eco-innovation importance moderates the eco-friendly deliberate practice–eco-innovation link, such that at high(low) levels of perceived eco-innovation importance, the relationship between eco-friendly deliberate practice and eco-innovation performance is more(less) pronounced. The study examines a hitherto unexplored moderated mediation model to explain under which conditions eco-friendly deliberate practice promotes eco-innovation performance through creative self-efficacy and perceived eco-innovation importance.

Keywords: eco-friendly deliberate practice; creative self-efficacy; eco-innovation performance; perceived eco-innovation importance



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1. Introduction

Challenged by mounting pressures of governmental programs to address global warming trepidations and embed green practices across business activities, service firms in the tourism industry face an imperative to improve their environmental performance and efficiency [1]. Organizations have shifted their focus to eco-innovation performance to minimize negative externalities and to reach escalating consumers’ demands and governments’ green requirements [2,3]. Eco-innovation refers to “the production, assimilation or exploitation of a product, production process, service or management or business method that is novel to the organization (developing or adopting it) and which results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use (including energy use) compared to relevant alternatives” [4] (p. 7). Despite burgeoning interest in eco-innovation performance [5], many organizations find it bewildering to cultivate environmental sustainability [6].

Although the term “eco-innovation” has garnered increasing attention from researchers and practitioners, there are significant gaps in our understanding of this phenomenon [7]. First, there is a dearth of empirical literature that casts individual factors as antecedents of eco-innovation performance [8]. This study predicts that eco-friendly deliberate practice, which refers to a thoughtful engrossment of individuals in activities they believe can influence their environment and the intention of those individuals to gain expertise in those activities [9], can be associated with eco-innovation performance. It is worth noting that for organizations to leverage eco-innovation, their employees must engage in such practices that can promote environmental sustainability and efficiency [10]. To the best of the authors’ knowledge, this is the first study that examines eco-friendly deliberate practice as a key stimulator of eco-innovation performance. A preponderance of research has linked deliberate practice with various individual and organizational outcomes [9,11–15]. Exploring eco-friendly deliberate practice in this context is important because organizations can implement necessary interventions to foster eco-friendly deliberate practice in the workforce. Thus, investigating eco-friendly deliberate practice can help organizations to proliferate their eco-innovation performance.

Second, in addition to measuring the direct effect of eco-friendly deliberate practice on eco-innovation performance, this study proposes a causal mechanism that can underpin this association: creative self-efficacy [16]. The study is anchored in social cognitive theory [17,18] and predicts that eco-friendly deliberate practice, particularly intended to nurture environmental sustainability, infuses creative self-efficacy in employees, which leads to superior eco-innovation performance. This study tests a hitherto unexplored mediating role of creative self-efficacy in the link between eco-friendly deliberate practice and eco-innovation performance. By addressing this gap, we aim to provide a more nuanced understanding of the implications of creative self-efficacy stemming from eco-friendly deliberate practice, subsequently translating into exaggerated eco-innovation performance.

Third, this study extends the boundary conditions of the eco-friendly deliberate practice–eco-innovation performance linkage, mediated by creative self-efficacy, such as under which conditions the association is more or less likely to be evident. This study projects that employees’ perceived eco-innovation importance serves as a moderating variable that can underpin the underlying connections. Guided by social cognitive theory (SCT) [17,18], employees who perceive that their organizations value eco-innovation [2] are more inclined to manifest activities that facilitate environmental sustainability, which ultimately transforms into increased eco-innovation performance. The study specifically projects that (1) creative self-efficacy mediates the association between eco-friendly deliberate practice and eco-innovation performance, and (2) perceived eco-innovation importance strengthens the association between eco-friendly deliberate practice and eco-innovation performance, mediated by creative self-efficacy.

Our study contributes to the academic discussion on the deliberate practice in the work context and relevant literature in numerous ways. First, by investigating the significant role of eco-friendly deliberate practice in determining service employees’ eco-innovation performance, it advances the implications of deliberate practice from its generic applications in the domains of sports [19,20] and instrumental music [21,22] to the organizational domain. Research studies encompassing deliberate practice in interdisciplinary fields are limited and invite empirical studies examining such relationships [9]. Further, by presenting a hitherto unexplored mediating role of creative self-efficacy in the link between eco-friendly deliberate practice and eco-innovation performance, our study presents unique and novel insights into creative self-efficacy in mediating these underlying linkages. Last but not least, we propose the crucial role of perceived eco-innovation importance as an intervening variable to underpin the impact of eco-friendly deliberate practice in enhanced eco-innovation performance through creative self-efficacy. By predicting these relationships, we anticipate that creative self-efficacy may offer a maximum explanation to transform the impact of eco-friendly deliberate practice into enhanced eco-innovation performance.

2. Hypotheses

2.1. Eco-Friendly Deliberate Practice and Creative Self-Efficacy

The conceptual roots of deliberate practice can be traced in the seminal work of Ericsson et al. [21], who defined deliberate practice as “the individualized solitary practice in classical instrumental music as directed by a qualified teacher” [15] (p. 2, 21). The authors introduced the concept confined to the “classical domains”, such as sports and music. For instance, a wide array of scholarly work has found its reportage in fields such as medicine and surgery [23], software design [24], insurance sales [25], creative writing [26], artist performance [22], chess [19], sports [20], and musical performances [21]. Nevertheless, with its growing popularity, researchers started investigating its applications across the classic arenas, including entrepreneurship and work context [9]. As sanctioned by [27] (p. 16), “[w]hile the principles of deliberate practice were discovered by studying expert performers, the principles themselves can be used by anyone who wants to improve at anything, even if just a little bit”. According to the authors, deliberate practice infuses behaviors that can overcome the “performance plateaus”, which are caused due to routinization and automatization of behavior arising once a certain satisfactory level has been reached. It is worth noting that performance plateaus can occur at any level of competence development [28]. Ergo, it is plausible to extend its applications to other domains to overcome performance plateaus [9].

Empirical research has shown a variety of deliverables at the disposal of deliberate practice in full swing [9,11,13–15]. Deliberate practice engenders continuous improvements due to repetition and feedback nurtured through individuals’ self-regulated designated efforts [28]. Specifically, the study proposes that eco-friendly deliberate practice, i.e., an individual’s mastery experiences, is the most effective way of building a strong sense of creative self-efficacy. That is to say, when analyzing the relationship between deliberate practice and creative self-efficacy, we need to account for an individual’s creative experiences directed at leveraging environmentally friendly business activities and processes. This study is anchored in social cognitive theory (SCT) [17,18], which posits that individuals are “agentic”, and they hold the belief, i.e., of self-efficacy, that they possess the abilities to influence the environment (e.g., fostering eco-innovation) with their behaviors (e.g., eco-friendly deliberate practice) [29]. Particularly, they believe that eco-friendly deliberate practice, aimed at improving and expanding behavioral repertoire into influencing the environment, stimulates creative endeavors. This definite form of task confidence elicits creative self-efficacy [30]. In the pursuit of nurturing entrepreneurial competencies through deliberate practice, Mabry et al. [31] have found positive correlates between deliberate practice and general self-efficacy. Therefore,

H1. *Eco-friendly deliberate practice is positively related to creative self-efficacy.*

2.2. Creative Self-Efficacy and Eco-Innovation Performance

H2. *Creative self-efficacy is positively related to eco-innovation performance.*

Creative self-efficacy has so far received extant attention in organizational psychology because of its proximal link to innovation outcomes [32]. Based on social cognitive theory [17,18], this study predicts that creative self-efficacy translates into augmented eco-innovation performance. Creative self-efficacy promotes eco-innovation because individuals who are more confident about their capabilities to master eco-friendly practices turn their creative ideas into superior eco-innovation performance. More broadly, “the [eco]innovation process is full of obstacles, such as needing to experiment with different [eco-friendly] ideas, convince others of the value of ideas, and transform ideas into value-added [e.g., eco-friendly] products and services” [28,30] (p. 149). Individuals confident in their creative task ability are more likely to initiate creative ideas and navigate and persevere through the innovation process [30]. Hence, its predictions are amenable to empirical tests that creative self-efficacy can promote eco-innovation performance. Therefore,

2.3. The Mediating Role of Creative Self-Efficacy

In marrying these assertions, this study predicts that creative self-efficacy mediates the association between eco-friendly deliberate practice and eco-innovation performance. This study is anchored in social cognitive theory, which purports that there are four major sources of self-efficacy: “mastery experiences”, “vicarious learning”, “social persuasion”, and “the overcoming of emotional barriers” [30]. According to Bandura [18] “[t]he most effective way of building a strong sense of efficacy is through mastery experiences”. Hence, mastery experiences, spurred through eco-friendly deliberate practice, are translated into embellished levels of creative self-efficacy, which eventually climax in ameliorated eco-innovation performance. In short, efforts invested in mastering environmentally friendly activities can help individuals develop unique and creative ideas to foster environmental sustainability, ultimately promoting eco-innovation performance. Therefore,

H3. *Creative self-efficacy mediates the relationship between eco-friendly deliberate practice and eco-innovation performance.*

2.4. The Moderating Role of Perceived Eco-Innovation Importance

Furthermore, we also expect the moderating role of perceived eco-innovation importance in the relationship between eco-friendly deliberate practice and creative self-efficacy. Perceived eco-innovation importance refers to “the extent to which employees believe that [eco]innovation is crucial to their organizations’ well-being and success” [30] (p. 150). That is to say, perceived eco-innovation importance is subjective and reflects employees’ perception of their organizations and how much those organizations value eco-innovation. The element of subjectivity elicits the assessment of perceived eco-innovation as a critical contextual factor because individuals may differ in their interpretations of an organization’s intentions to leverage eco-innovation [33–35]. Furthermore, [30] corroborated that perceived eco-innovation importance engenders variability because some organizations emphasize eco-innovation without exhibiting actual support for it, while others emphasize as well as support eco-innovation.

Employees develop belief in their organizations when they perceive that eco-innovation performance is a salient goal for sustainable development. However, when employees experience the perception that their organizations do not value eco-innovation and view it as a non-salient goal [30,36,37], the likelihood of employees manifesting eco-friendly deliberate practice condenses. Guided by social cognitive theory [17,18], the lack of eco-friendly deliberate practice lessens one’s mastery experiences, subsequently depressing their creative self-efficacy. On the contrary, when employees perceive that their organizations value eco-innovation and view it as a salient goal, they develop the belief that their organizations have a nourishing culture and corresponding infrastructure (e.g., routines and rewards) that enrich their behavioral repertoire, which facilitates eco-friendly creative activities. They might see themselves as productive and worthy because creative self-efficacy signals that they are likely to contribute to organizational success. Therefore,

H4. *Perceived eco-innovation importance moderates the association between eco-friendly deliberate practice and creative self-efficacy such that the relationship is more pronounced at higher levels of perceived eco-innovation importance.*

2.5. A Moderated Mediation Model

Thus far, we have explained how eco-friendly deliberate practice leads eco-innovation performance via creative self-efficacy, and propose the moderating role of perceived eco-innovation importance on the eco-friendly deliberate practice–creative self-efficacy relationship. Taking these together, we further predict the moderated mediation model of these associations. At high levels of perceived eco-innovation importance, the association between eco-friendly deliberate practice and eco-innovation performance is stronger due to increased levels of creative self-efficacy. However, the association between eco-friendly

deliberate practice and eco-innovation performance is less salient than at low levels of perceived eco-innovation importance (Figure 1). Therefore,

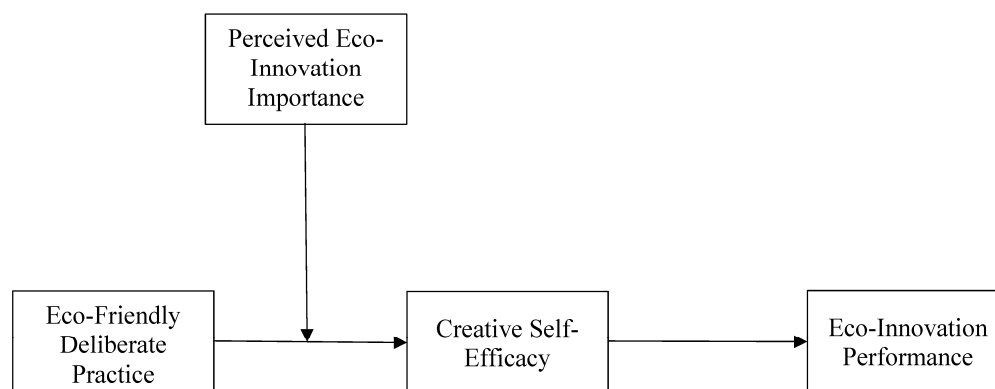


Figure 1. Conceptual model.

H5. *Perceived eco-innovation importance moderates the association between eco-friendly deliberate practice and eco-innovation performance, mediated by creative self-efficacy such that the relationship is more pronounced at higher levels of perceived eco-innovation importance.*

3. Method

3.1. Sample and Procedure

The study utilized a time-lagged (i.e., “three-wave”) research design to collect data from service employees in tourism firms in Pakistan. The authors administered questionnaires to the target respondents in the selected companies with a time interval of eight weeks between each wave. This is in line with the suggestion of Maxwell and Cole [38] to collect responses at different time intervals because the effects of mediation analysis spans over a period of time. However, failure to do so may lead to possible biases in measuring the parameters in mediation analysis [39].

One of the authors had personal links to the selected companies. This helped the authors to gather “face-to-face” responses using purposive sampling technique. It is noted that a purposive sampling technique is useful when authors need to meet the objectives of a study by collecting arbitrary responses [40]. The authors distributed questionnaires to the target respondents along with cover letters that specified the rationale of the study and ensured confidentiality of responses. The cover letter also contained information for the respondents to explain how to generate keys to match responses in each wave. They were requested to provide the first and last letters of their last names and their birth years.

In the first wave, the authors distributed 500 questionnaires to the selected respondents and received back 445 questionnaires concerning demographic profile, eco-friendly deliberate practice, and perceived eco-innovation importance. Of these, 17 incomplete and/or wrongly filled questionnaires were omitted. After an interval of eight weeks, the authors contacted these respondents to collect data for creative self-efficacy, and a total of 399 completely filled questionnaires were received. In the third wave, the authors collected data for eco-innovation performance.

The authors consolidated all the responses with the help of keys generated by the participants and processed a total of 367 completely filled questionnaires (response rate: 74%). The data contains responses from 65% and 35% of men and women respectively, with an average age of 38 years ($SD = 0.50$). With respect to employment status, 54% of the participants were permanent, and 46% were contractual employees. Concerning their positions in the firm, 30%, 42%, and 28% were in “lower-level”, “middle-level”, and “upper-level” managerial positions, respectively. Concerning tenure, employees worked with their organizations for the following amounts of time: 34% (less than one year),

28% (one–three years), 18% (three–five years), 12% (five–eight years), and 8% (more than eight years).

3.2. Measures

In order to collect data, the study adapted the established measurement scales. The questionnaire was asked in English because English is a medium of instruction at schools, colleges, and universities as well as in business organizations in Pakistan. All the scale items were assessed on a five-point Likert scale ranging from 1 for “strongly disagree” to 5 for “strongly agree”.

3.2.1. Eco-Friendly Deliberate Practice

The research instrument used to measure eco-friendly deliberate practice was adapted from Sonnentag and Irion [41], and contains 15 items. The sample items include “In order to improve my eco-innovation skills, I deliberately take some time to re-think my working technique” (Cronbach’s alpha: 0.78).

3.2.2. Creative Self-Efficacy

The research instrument used to measure creative self-efficacy was adapted from Malik et al. [42] and Tierney and Farmer [43], containing four items. The sample items include “I have a confidence in my ability to solve problems creatively”, and “With my creative skills, I can handle unforeseen situations” (Cronbach’s alpha: 0.85).

3.2.3. Eco-Innovation Performance

The research instrument used to measure eco-innovation performance was adapted from Welbourne et al. [44], and contains four items. The sample items include “Coming up with new eco-friendly ideas” and “Creating better eco-friendly processes and routines” (Cronbach’s alpha: 0.90).

3.2.4. Perceived Eco-Innovation Importance

The research instrument used to measure perceived eco-innovation importance was adapted from Ng et al. [30], and contains six items. The sample items include “I believe in the value of eco-innovation here”, “Continuous eco-innovation is a good strategy for this organization”, and “I think that management here is doing the right thing by promoting eco-innovation” (Cronbach’s alpha: 0.74).

3.2.5. Data Analysis

The study employed the variance-based structural equation model technique and processed it in SmartPLS (v 4.0). The reasons to measure the partial least squares structural equation model (PLS-SEM) are as follows: (1) the purpose of the study is to assess the explained variance in the “endogenous latent variables” caused due to “exogenous latent variables” [45]; and (2) the study hypothesizes a complex model by proposing a “moderated mediation” analysis in the underlying relationships [46].

4. Results

4.1. Measurement Model

The authors assessed the PLS-SEM using SmartPLS (v 4.0) in two stages. In the first stage, the authors examined the “measurement model” to ensure “internal consistency, i.e., reliability” and “convergent and discriminant validity” of the measurement scales. In order to measure the “internal consistency”, the authors assessed the reliability using the “composite reliability (CR)” and “Cronbach’s alpha” metrics [45]. According to Nunnally and Bernstein [47], the values of CR and Cronbach’s alpha should exceed 0.70 in order to ensure reliability of the scale. Results presented in Table 1 show that all the values exceed 0.70, thus ensuring the reliability of the instruments. Furthermore, the authors assessed “convergent validity” using “outer loadings” and “average variance extracted (AVE)”.

Hair et al. [45] suggested the minimum threshold values of these metrics to be greater than 0.50. Table 1 illustrates that all the out loadings and AVE values are greater than the acceptable threshold, thereby confirming convergent validity in the study.

Table 1. Validity and reliability for constructs.

	Loadings	AVE	CR	Cronbach's Alpha
Eco-friendly deliberate practice		0.520	0.882	0.846
EDP1	0.752			
EDP2	0.653			
EDP3	0.832			
EDP4	0.713			
EDP5	0.743			
EDP6	0.664			
EDP7	0.634			
EDP8	0.764			
EDP9	0.623			
EDP10	0.723			
EDP11	0.753			
EDP12	0.653			
EDP13	0.775			
EDP14	0.674			
EDP15	0.773			
Creative self-efficacy		0.533	0.912	0.868
CSE1	0.675			
CSE2	0.676			
CSE3	0.800			
CSE4	0.762			
Eco-innovation performance		0.511	0.890	0.848
EP1	0.774			
EP2	0.625			
EP3	0.754			
EP4	0.685			
Perceived eco-innovation importance		0.550	0.843	0.801
PEI1	0.748			
PEI2	0.838			
PEI3	0.683			
PEI4	0.743			
PEI5	0.633			
PEI6	0.773			

Notes. EDP: eco-friendly deliberate practice; CSE: creative self-efficacy; EP: eco-innovation performance; PEI: perceived eco-innovation importance.

In addition, the authors assessed the “discriminant validity” to ensure that the “intra-construct” correlations should be higher than “inter-construct” correlations [45]. In light of the recommendations of Hair et al. [45], the study tested the “heterotrait–monotrait (HTMT)” ratio. To measure the HTMT ratio, the authors used the “bias-corrected and accelerated (BCa)” bootstrapping technique using a resample of 5000 at 90% significance level (one-tailed), to yield an error probability of 5% [48]. The maximum threshold value of the HTMT ratio is reported to be HTMT_{.85} [49]. Table 2 shows that all the values are less than the maximum threshold, with confidence intervals (CIs) not straddling 0 in the range. This ensures discriminant validity in the study.

Table 2. HTMT Criterion.

	EDP	CSE	EP	PEI
EDP				
	0.702			
CSE	CI _{0.900} [0.640;0.780]			
	0.711	0.601		
EP	CI _{0.900} [0.652;0.792]	CI _{0.900} [0.516;0.693]		
	0.647	0.456	0.711	
PEI	CI _{0.900} [0.562;0.721]	CI _{0.900} [0.371;0.523]	CI _{0.900} [0.635;0.776]	

Notes. EDP: eco-friendly deliberate practice; CSE: creative self-efficacy; EP: eco-innovation performance; PEI: perceived eco-innovation importance.

4.2. Structural Model

After validating the measurement model, the study assessed the structural model to determine the “path coefficients (β)”, “coefficient of determination (R^2)”, “predictive relevance (Q^2)”, and “effect size (f^2)”. In order to generate the relevant t and p values to estimate the β values, the study assessed the BCa bootstrapping technique on a resamples of 5000 at a 95% significance level [45]. Table 3 presents the β values along with t and p values. Results indicate that eco-friendly deliberate practice has a significant positive influence on creative self-efficacy ($\beta = 0.512$; $t = 12.334$; $p = 0.000$; $f^2 = 0.232$), with a medium effect size. In addition, creative self-efficacy has a significant positive influence on eco-innovation performance ($\beta = 0.526$; $t = 4.732$; $p = 0.003$; $f^2 = 0.432$), with a large effect size. The analysis renders support to our first two hypotheses H1 and H2.

Table 3. Effects on endogenous variables.

Hypotheses	β	CI (5%, 95%)	SE	t -Value	p -Value	Decision	f^2	R^2	Q^2
H1 EDP \rightarrow CSE	0.512 **	(0.441, 0.589)	0.052	12.334	0.000	Supported	0.232	0.554	0.363
H2 CSE \rightarrow EP	0.526 **	(0.463, 0.592)	0.037	4.732	0.003	Supported	0.432	0.486	
H4 EDP \times PEI \rightarrow CSE	0.429 **	(0.334, 0.519)	0.062	9.832	0.000	Supported	0.124		
H5 EDP \times PEI \rightarrow EP	0.447 **	(0.355, 0.525)	0.051	14.428	0.000	Supported	0.185		

Notes. EDP: eco-friendly deliberate practice; CSE: creative self-efficacy; EP: eco-innovation performance; PEI: perceived eco-innovation importance; ** significance $p < 0.05$ (1.96).

Using Zhao et al.’s [50] recommendations, this study determined the mediation analysis by employing the BCa bootstrapping technique with 5000 resamples at 95% significance level. The results of this analysis are presented in Table 4, revealing that both the direct effects, i.e., eco-friendly deliberate practice \rightarrow eco-innovation performance (CIs 0.332, 0.481), and the indirect effects, i.e., eco-friendly deliberate practice \rightarrow creative self-efficacy \rightarrow eco-innovation performance (CIs 0.267, 0.416) are significant, indicating complementary mediation [45]. In addition, the study also assessed the “variance accounted for (VAF)” by dividing the “indirect effect” by “total effect” and yielded the value of 45.35%. This indicates that creative self-efficacy partially mediates the association between eco-friendly deliberate practice and eco-innovation performance, supporting H3.

In addition, the study also predicted a moderated mediation framework; therefore, in order to assess the moderation analysis, the study employed the “two-stage” moderation approach to examine the interaction effect of eco-friendly deliberate practice and perceived eco-innovation importance [51]. The authors estimated the effect sizes using BCa bootstrapping on 5000 resamples at a 95% significance level. Results presented in Table 3 show that the interaction term (eco-friendly deliberate innovation practice_perceived eco-innovation importance) significantly affects (1) creative self-efficacy ($\beta = 0.429$; $t = 9.832$; $p = 0.000$;

$f^2 = 0.124$), with a medium effect size, and (2) eco-innovation performance ($\beta = 0.447$; $t = 14.428$; $p = 0.000$; $f^2 = 0.185$), with a medium effect size.

Table 4. Summary of mediating effect tests.

	Path	t-Value	BCCI		Path	t-Value	95% BCCI	Decision	VAF
Direct effect EDP → EP	0.412 **	11.228	(0.332, 0.481)	Indirect effect EDP → CSE → EP	0.342 **	7.110	(0.267, 0.416)	Supported	45.35%

Notes. EDP: eco-friendly deliberate practice; CSE: creative self-efficacy; EP: eco-innovation performance; PEI: perceived eco-innovation importance; ** significance $p < 0.05$ (1.96).

Moreover, following the recommendations of Dawson [52], the study also assessed the graphical representation of the interaction effect of eco-friendly deliberate practice_perceived eco-innovation importance on creative self-efficacy and eco-innovation performance. Results of this analysis are shown in Figures 2 and 3. The simple slope analyses show that at high levels of perceived eco-innovation importance, the associations between eco-friendly deliberate practice and (1) creative self-efficacy, and (2) eco-innovation performance are stronger than at the lower levels of perceived eco-innovation importance. This supports our hypotheses H4 and H5.

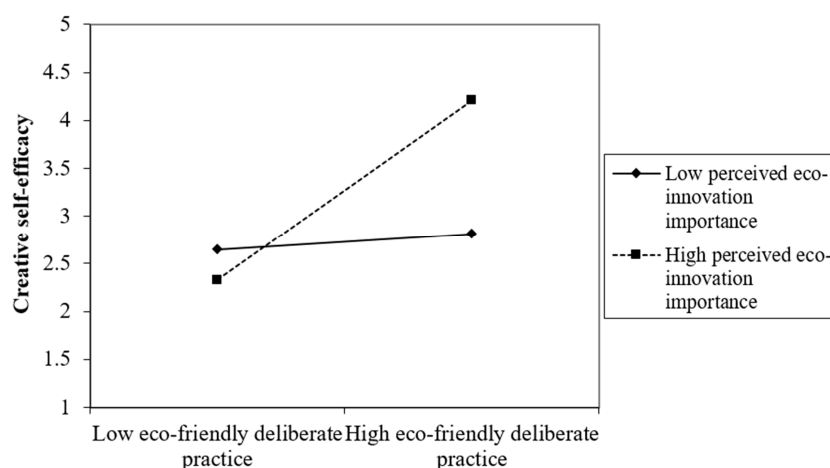


Figure 2. Interaction effect of eco-friendly deliberate practice × perceived eco-innovation importance on creative self-efficacy.

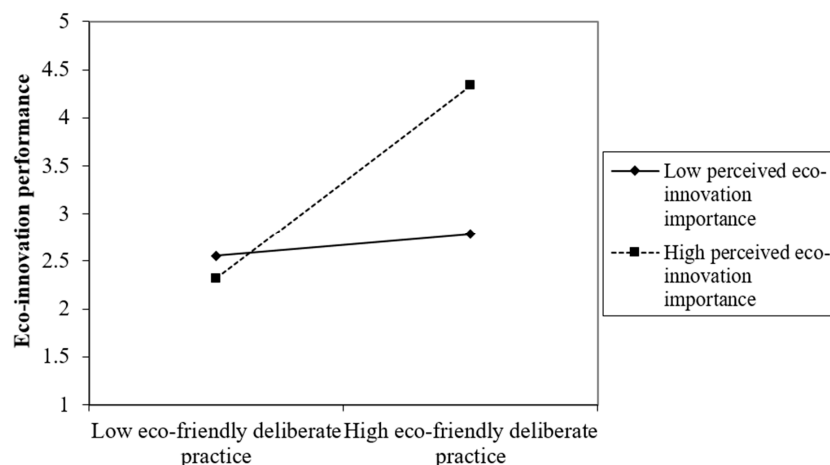


Figure 3. Interaction effect of eco-friendly deliberate practice × perceived eco-innovation importance on eco-innovation performance.

Furthermore, the study also assessed the “goodness-of-fit (GoF)” index following the recommendations of Tenenhaus et al. [53]. The authors defined GoF as “the geometric mean of the average communality and average R^2 ”. Results of this analysis are shown in Table 5. The analysis yields the GoF value of 0.524, which is greater than the value of 0.36 for a large effect size [54], indicating a good model fit. In addition, the study also assessed the “predictive relevance” by applying the Stone–Geisser’s (Q^2), with an omission distance of 5. The test produced a Q^2 value greater than 0, establishing the predictive capability of the hypothesized model.

Table 5. Goodness-of-Fit Index (GFI).

Constructs	AVE	R^2
EDP	0.520	
CSE	0.533	0.554
EP	0.511	0.486
PEI	0.550	
Average scores	0.528	0.520
$(GFI = \sqrt{AVE \times R^2})$	0.524	

Notes. EDP: eco-friendly deliberate practice; CSE: creative self-efficacy; EP: eco-innovation performance; PEI: perceived eco-innovation importance.

5. Discussion and Conclusions

Challenged by mounting governmental programs to translate eco-innovation performance into fostering environmental sustainability, service firms in the tourism industry find an imperative to leverage eco-friendly business practices and processes. For this reason, it is of paramount importance that both organizations and their employees value eco-innovation. Given the critical role of eco-innovation, this study is anchored in social cognitive theory and predicts that eco-friendly deliberate practice can promote eco-innovation performance through the mediating role of creative self-efficacy and the moderating role of perceived eco-innovation importance. This study employs a survey strategy to collect data from service employees in tourism firms using a time-lagged research design. The findings support the theoretical model, such as:

The study supported H1, which states a significant positive relationship between eco-friendly deliberate practice and creative self-efficacy. The results of this study advance prior research on the link between deliberate practice and self-efficacy [9,13,14,27], by extending its implications in the work context, particularly in the context of sustainability by projecting eco-friendly deliberate practice fostering creative self-efficacy of service employees in the tourism industry. Our findings indicate that employees who demonstrate sustainable deliberate practice are more likely to come up with novel and innovative ideas, thereby, nurturing the creative self-efficacy of performing eco-friendly activities. In addition, we further expect correlations between eco-friendly deliberate practice and harmonious passion, thereby reinforcing the link between eco-friendly deliberate practice and creative self-efficacy. Future studies may explore the link between eco-friendly deliberate practice and passion for work.

Similarly, the second hypothesis H2 states a significant positive relationship between creative self-efficacy and eco-innovation performance. Our findings are consistent with previous studies that have linked creative self-efficacy with creativity [26,42] and innovation performance [32]. Relying on social cognitive theory, we project that creative self-efficacy leverages individuals to hold beliefs that they possess capabilities to influence the environment, i.e., fostering eco-innovation performance with their actions. Thus, creative self-efficacy allows individuals to transform their eco-friendly deliberate practice into enhanced eco-innovation performance. This supports hypothesis H3, which states that creative self-efficacy mediates the relationship between eco-friendly deliberate practice and eco-innovation performance.

In addition, the study predicted that perceived eco-innovation importance moderates the relationship between eco-friendly deliberate practice and eco-innovation performance, mediated by creative self-efficacy (H4 and H5). Our findings support the intervening role of perceived eco-innovation importance on the association between eco-friendly deliberate practice and eco-innovation performance such that at high levels of perceived eco-innovation importance the relationships are more pronounced and vice versa. Our study advances the research of Ng et al. [30], who found that perceived innovation performance moderates the relationship between idea rejection and creative self-efficacy.

6. Implications for Theory

There are several ways in which our findings extend theoretical implications for the streams of literature on deliberate practice and innovation performance. First, by studying the implications of eco-friendly deliberate practice within the work context, we enrich the understanding of the effects of devoted and persistent environmentally friendly efforts in the eco-innovation literature. Previous studies have predominantly focused on the applications of deliberate practice in other domains (e.g., sports and music). That said, a host of researchers in recent years have studied deliberate practice in the work context. For instance, several well-cited studies have assessed the role of deliberate practice in entrepreneurial expertise [55], entrepreneurial learning and self-efficacy [56], and informal learning and entrepreneurial success [57], and among others. Nonetheless, given its critical role, it is surprising that this strand of research is quite slender and warrants further investigations of the implications of deliberate practice in the work context [9]. Our results highlight the importance of eco-friendly deliberate practice as a crucial factor in fostering eco-innovation performance. As this is the first paper to present and assess the value of eco-friendly deliberate practice in promoting eco-innovation performance, our research extends our understanding of eco-innovation performance as the outcome of dedicated, persistent, and purposeful efforts.

In addition, our study is among the first to project and investigate creative self-efficacy as a causal mechanism that underlies the eco-innovation performance process, therefore providing a nuanced picture of the process that leverages eco-innovation performance from employees' perspective. This study predicts that persistent and purposeful efforts transforming into environmentally friendly activities, as a result of mastery experiences, engender creative self-efficacy. The relationship between eco-friendly deliberate practice, creative self-efficacy, and eco-innovation performance has not been tested earlier. The current study addresses the gap by investigating creative self-efficacy as a mediator between eco-friendly deliberate practice and eco-innovation performance. Anchored in social cognitive theory [17,18], our findings further the implications of the self-efficacy literature such that one's purposeful and persistent efforts allow one to carry out agentic actions, and these mastery experiences can nurture creative self-efficacy, subsequently leading to superior eco-innovation performance.

Finally, by investigating the boundary effects of perceived eco-innovation importance, we have added to the growing understanding of the outcomes of perceived innovation importance in work contexts. It is worth noting that only a little existing research has investigated perceived innovation importance, despite its significant role in cultivating innovation performance. We have enriched the existing literature and found that eco-friendly deliberate practice alone cannot stimulate eco-innovation performance, unless employees perceive that their organizations emphasize as well as support innovation. Eco-friendly deliberate practice requires nourishing culture and corresponding infrastructure that not only empower employees to engage in environmentally friendly activities, but also encourage them and extend support towards them to manifest eco-friendly deliberate practice. Therefore, it is especially important to value eco-innovation to leverage eco-innovation in effective ways.

7. Implications for Practice

Our findings extend useful insights to managers and service companies in the tourism industry. Given the escalating weight of governmental programs and the changing landscape of business markets in the fostering of environmental sustainability [10], service firms in the tourism industry require an imperative to emphasize and support eco-friendly practices [1] to fuel eco-innovation performance. In order to meet the rising demands of customers and government bodies, and to achieve a sustainable competitive advantage, service firms in the tourism industry should implement several radical interventions that can promote their eco-innovation performance. For instance, we have noted that eco-friendly deliberate practices are self-regulated, purposeful, and persistent efforts in leveraging environmental sustainability. In this regard, leadership support [58], eco-friendly organizational culture [59], and perceived organizational support [60] might serve as crucial factors that can reinforce eco-friendly deliberate practice in the workplace. In addition, deliberate practices require a certain degree of passion for work to purposefully and persistently invest one's activities in promoting environmental sustainability. Therefore, organizations should implement policies that can promote passion for work [61] so that employees' engagement in eco-friendly deliberate practice can be fueled.

Moreover, given the critical role and importance of deliberate practice in elevating one's performance levels, researchers contemplate whether deliberate practice is, if not deadly, unpleasant and effortful [62]. This is because mental exhaustion limits one's abilities to perform and accomplish deliberate practice [22]. Insights from a psychological perspective indicate that "grit" and "harmonious passion" are the key stimulators of deliberate practice [62]. Grit reflects the tendency of an individual to sustain activity and interest over a long period of time. Harmonious passion represents one's internal drive to merge activities of interest with one's identity, ultimately enhancing deliberate practice. As discussed above, regarding the significant role of passion for work in nurturing eco-friendly deliberate practice, organizations should take into account the "person-job fit" perspective [63] to foster harmonious passion. This will not only result in fostering eco-friendly deliberate practice among individuals, but also escalated levels of creative self-efficacy. In addition, studies have reported that through shared vision, organizations can motivate employees to engage in activities (e.g., eco-friendly deliberate practice) that may translate into higher levels of achievement. Additional insights may be drawn from expectancy-value theory (EVT). Expectancy refers to the degree of belief people have in their abilities to succeed. Value represents subjective values people associate with success (e.g., utility value, intrinsic value, attainment value), and is influenced by perceived benefits and costs. Through growth mindset interventions, organizations can teach employees that they can enhance their performance outcomes with a positive mindset.

In addition, organizations should recognize the importance of creative self-efficacy as an important factor in translating employees' eco-friendly creative efforts into augmented eco-innovation performance. It is noteworthy that organizational strategies to promote eco-innovation performance may not be effective if employees lack belief in their creative selves. Therefore, organizations should have a supportive eco-innovative climate that may encourage eco-friendly creative activities and enhance creative self-efficacy through appropriate coaching and training in general. Chereau and Meschi [56] argue that feedback and reinforcement are the key inputs for improving deliberate practice, ultimately fostering creative self-efficacy.

Finally, this study predicts that perceived eco-innovation importance strengthens the relationship between eco-friendly deliberate practice and eco-innovation performance through the mediating role of creative self-efficacy. This study presents insights to managers that employees hold beliefs about how much their organizations value innovation. An organization that truly values innovation should have a nurturing culture and supportive infrastructure that facilitate the manifestation of eco-friendly deliberate practice. Organizations should acknowledge and translate employees' eco-innovative capabilities into

increased eco-innovation performance through necessary support and shared vision [64] for promoting eco-innovation.

8. Limitations and Future Directions

Several limitations in this study should be considered when generalizing its findings. First, this study used a time-lagged research design to collect data during different time intervals. By employing a time-lagged research design, the possible threats of the common method biases are minimized [65], however, future studies are invited to test the hypothesized model using a longitudinal research design. Second, this study investigates the impact of eco-friendly deliberate practice in fostering creative self-efficacy and promoting eco-innovation performance. However, this study finds that creative self-efficacy partially mediates the underlying linkage. Therefore, we invite future studies to investigate other mediators in the association between eco-friendly deliberate practice and eco-innovation performance. Moreover, we suggest that future studies incorporate SM3D knowledge management theory systems [66] for a finer-grain understanding of the underlying mechanism among these relationships. Further, the mechanism of change from perception to action may be studied through the lenses of serendipity [66] and mindsponge [67–69]. Finally, the findings of this study are based on a survey conducted in a non-Western country, i.e., Pakistan. However, it is quite questionable to expand findings from a country characterized by a “high-power distance, collectivist” culture to countries characterized by “low-power distance, individualistic” cultures.

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